SUSRUTA

SÚTRASTHÁNA OR GENERAL PRINCIPLES.

CHAPTER I.

ON THE ORIGIN OF THE ÁYURVEDA.

Salutation to Brahma,[1] Prajápati,[2] Aśvinikumára,[3] Indra,[4] Dhanvantari,[5] Sus'ruta,[6] etc.

Now I shall describe the origin of the Áyurveda as was related by the lord Dhanvantari to Sus'ruta. Aupadhenava Vaitaraṇa, Aurabhra, Paushkalávata, Karavírya, Gopura, Rakshita, Sus'ruta, and other sages thus addressed the immortal lord Divadása Dhanvantari, king of Benares, who was sitting in his hermitage surrounded by sanctified sages. Oh lord! we are much grieved to see around us human beings suffering from bodily, mental, accidental and natural diseases, and who lament and cry aloud like helpless beings without any friends or means. For the restoration or cure of these health-seeking individuals, for the preservation of our own lives and for the good of mankind, we have come here to be instructed in the Áyurveda or medical science. Our well-being in this, and the next world depends upon a knowledge of this medical science, hence we have approached your worship as pupils.

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[1] Brahma, Creator.

[2] Prajápati, Daksha father of Dúrga.

[3] Aśvinikumára, twin sons of the sun and surgeons of the gods.

[4] Indra, the king of gods.

[5] Dhanvantari, physician of the gods.

[6] Suśruta, the reputed author of this work.

Dhanvantari replied—You are welcome. You, my sons, are well educated and qualified to receive instruction in the A'yurveda. The A'yurveda is a subsidiary branch of the Atharvaveda. Brahma had composed it in a hundred thousand s'lokas and a thousand chapters before the creation of man. Afterwards in consideration of the short lives and the limited intellectual capacity of human beings, he divided it into eight chapters, namely, *S'alya*, *S'álákya*, *Káyachikitsá*, *Bhútavidyá*, *Kaumárabhṛitya*, *Agadatantra*, *Rasáyanatantra* and *Vájikaraṇatantra*.

The following is a brief account of the contents of these eight chapters. The chapter called *S'alya* treats of the extraction of external substances accidentally introduced into the body such as grass, wood, stones, earth, iron, fragments of bricks, bones, hair, nails and arrows; of pus and retained secretions, and of the fœtus from within the womb. It teaches also the use of blunt instruments, cutting instruments, escharotics and the actual cautery, together with the diagnosis and treatment of inflammation.

The chapter called *S'álákya* treats of the diseases of the ears eyes, mouth, nose, and other parts of the body situated above the clavicles.

The chapter called *Káyachikitsá* treats of diseases h affect the whole body, such as fever, diarrhœa, hæmorrhage, consumption, insanity, epilepsy, skin diseases, urinary disorders, etc.

Bhútavidyá treats of the various sorts of mental derangements caused by demoniacal possessions or the influence of *Devas*,[7] *Asuras*,[8] *Gandharvas*[9], *Yakshas*,[10] *Rakshas*,[11] spirits of ancestors, *Pis'áchas,*[12] *Nágas,*[13] *Grahas,*[14] etc. upon human beings. It treats also of the prayers, religious offerings, presents, etc., that have to be made for appeasing the offended demons or spirits that possess human beings.

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[7] *Devas* or gods.

enemies of the ls.

emigods acti as celestial musicians.

attend of the god of wealth.

na estroying, and devouring human beings.

Kaumárabhṛitya treats of the management of children, of the removal of defects in the milk of wet-nurses, and the treatment of the diseases of children caused by bad milk and possession by evil spirits.

The chapter called *Agadatantra* treats of the diagnosis and treatment of various sorts of poisoning and of the bites of serpents, insects, spiders, scorpions, mice, etc.

Rasáyana-tantra treats of those medicines which restore youth, increase life, intellect and strength and give power to resist diseases.

Vájikaraṇa-tantra treats of the remedies for improving scanty, perverted, dried or weak semen, for promoting pleasure and exciting sexual desire. Such are the eight chapters or divisions of the Áyurveda.

Dhanvantari then asked, Whom shall I address and on what subject? They replied, "To us, Lord. Please make *S'alya-jñána* or surgery the basis of your instruction." Dhanvantari said, "be it so." The pupils again said, we are all of the same pinion and Sus'ruta will ask questions according to our views, nd while your worship is lecturing to Sus'ruta, we will all listen ith attention. Dhanvantari said, "be it so," and addressing us'ruta thus commenced :—

"My son,—The object or necessity of the Áyurveda in this world is the cure of diseased persons, and the preservation of health. *A'yuḥ* means life and *veda* to know or attain. Áyurveda therefore is the science by the knowledge of which, life can be prolonged or its nature understood. I will lecture on *S'alya-antra*, the first division of the Áyurveda in such manner that my instruction may not run counter to the doctrines of sacred science, logic, analogy and knowledge derived from experience. Please listen."

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[12] *Piśáchas* are infernal ghosts eating flesh.

[13] *Nága*, a demigod having a human face with the tail and neck of a serpent.

[14] Nine *grahas* or planets.

This portion of the A'yurveda is first in rank, from the circumstance of the wounds and ulcers of the gods having been healed, and even the decapitated head of Daksha united by its teaching, in days of yore. It is said that when Rudra cut off the head of Daksha, the gods called on the As'vini-kumáras and addressed them as follows: "Worshipful Sirs. There are not more competent youths than you two; hence the head of Daksha must be united to his trunk by you." They answered, "be it so," and accordingly united the head to the trunk of Daksha. For their sake the gods propitiated Indra by giving him a share of the sacrifice. This *S'alya-tantra* is considered the most important of the eight divisions, on account of the cures effected by it, being rapid and striking, on account of its teaching the use of blunt instruments, cutting instruments, caustics, cautery, etc., and its principles being applicable to all the other sections. Hence this portion of the A'yurveda is eternal and holy, and the means of attaining heaven, fame, longevity and wealth.

Brahma first expounded the A'yurveda to Prajápati who taught it to the two As'vini-kumáras. From these twins Indra studied the subject, and from Indra I obtained my knowledge Now for the good of mankind it is my duty to impart th knowledge to those who seek for it in this world. On th subject there is the following verse:

It was I who cured the diseases of the gods and prevente their deaths and decrepitude. I have now come to this world to lecture on *S'alya-tantra* and the other divisions of the A'yurveda in a comprehensive manner.

According to this *S'alya S'ástra* the human body is composed of the five elements, united with *purusha* or the vital principle The effect of medical treatment is produced on this vital principle. It exists in all living objects. These are divisable into two classes, namely, *sthávara* or living objects which cannot move, as trees, etc., and *jaṉgama* or living objects which can move, as birds, insects, beasts, etc. Each of these two classes are again subdivided into two classes, called *ágneya* and *saumya*, according to their heating and cooling qualities. Living objects may also be divided into five classes, according to the predominating quality of any one of the five elements of which they are composed, namely, fire, air, earth, water, and ether. Animals are produced or propagated in four different ways, namely, from the earth, from decomposing organic matter, from eggs, and from the uterus, and called respectively *udbhijja*, *svedaja*, *aṇḍaja* and *jaráyuja*. The vital part or *purusha* is the principal part or agent in these four sorts of living beings. The material portions are but the means for its action, hence it is the presiding element in all living beings, and hence also the contact of pain with it causes disease.

Diseases are of four sorts, namely, accidental, bodily, mental, and natural. Of these the accidental are caused by injuries. Bodily diseases are caused by derangement of the humours, namely, air, bile, phlegm, or blood, or of all these combined, brought on by irregularities in food and drink. Anger, grief, fear, delight, sorrow, envy, detraction, meanness, pride, avarice, lust, etc. are the diseases of the mind and the result of perverted will or avarice. Hunger, thirst, old age, death, sleep, etc. are natural diseases. These diseases are situated both in the body and mind. Diseases can be removed or cured by corrective and restorative medicines and practices. Food is the source of the colour, strength and virility of animals. All articles of food possess one or more of the six *rasas* or tastes, namely, pungent, bitter, astringent, sweet, acid and saline, and these six tastes exist in material objects.

Living objects here designated by the term *oshadhi* are divided into two classes, namely, *sthávara* and *jaṉgama*; of these the *sthávara* is subdivided into four classes, namely, *vanaspati*, *vṛiksha*, *virudha*, and *oshadhi*. Trees bearing fruits without producing flowers are called *vanaspati*. Those plants which bear both flowers and fruits are called *vṛiksha*. Creepers and plants resembling a bundle of grass are called *virudha*. Those plants which die after their fruits have ripened are called *oshadhi*.

Animals are also divided into four classes, according to their origin from the uterus, egg, decomposing animal matter or from the earth respectively. Men, beasts and ferocious animals, like the tiger, are born from the uterus. Birds, serpents and other reptiles are produced from eggs. Worms, insects, ants, etc., are produced from decomposing animal matter. An insect called *indragopa* (cochineal insect) and frogs are generated from the earth and are called *udbhijja*.

Of vegetables, bark, leaves, flowers, fruits, roots, tubers, exudation and juice are useful in medicine. Of animals, skin, nails, hairs, blood, etc., are useful. *Párthiva* or minerals as gold, silver, gems, pearls, orpiment, earth, earthen pan, etc., are another class.

With regard to time we have good breeze, calm, sunshine, shade, moonlight, darkness, heat, cold, rain, day and night, fortnight, month, season, half-year, etc. These four classes naturally have a great influence on the increase, derangement and relief of the humours of the body, hence their knowledge is necessary. There is a couplet to the effect, that physicians have said that these four classes of objects are the causes of the increase, derangement and relief of the diseases of living beings.

Accidental diseases are of two sorts. Mental and bodily diseases are different from each other. Their treatment also is of two different kinds. In accidental diseases, or injuries, medicines should be applied to the body, while in mental diseases, agreeable sound, touch, sight and smell are useful in restoring health. I have thus shortly explained the four subjects of vitality, disease, material objects, treatment and time. Of these by the term *purusha* or vitality must be understood not only the vital power, but the humours originating life, namely, blood and semen, the five elements composing the body and the skin, flesh, blood-vessels, nerves, etc. of the different parts of the body. By the term *vyádhi* or disease must be understood all the diseases produced by derangement of bile, air, phlegm, blood or all of them together. By the term *oshadhi* must be understood, material objects as well as their properties, tastes, strength, effects after digestion, and essential properties. Under treatment must be included surgical operations and the application of oils, etc. to the body. By the term *kála* or time must be understood the different hours of the day when different forms of treatment, such as administration of emetics or purgatives or inunction of oils, should be practised. The seed or origin of medicine has thus been briefly described. The subject will be fully explained in one hundred and eighty chapters. These hundred and eighty chapters will be included in five books, namely, *Sútrasthána, Nidánasthána, S'árírasthána, Chikitsitasthána* and *Kalpasthána.* Afterwards in the book named *Uttara-tantra* I will describe what will remain to be explained. Whoever studies this eternal Áyurveda, spoken by Brahma and made known by the king of Benares, Dhanvantari Divadása, becomes known as pious, is honoured by kings and attains after death the heaven of Indra.

CHAPTER II.

On the Initiation of Medical pupils.

In this chapter, will be described the ceremony of initiation a medical pupil. A physician can admit as a pupil, a son of f Bráhmaṇa, Kshatriya or Vais'ya of good family and sixteen ears old. He must be well behaved, brave, clean in habits, mo- st and possessed of bodily strength, firmness, intelligence, good memory and a desire to learn and achieve success. He must have thin tongue and lips, straight teeth and honest face, nose and eyes, cheerful disposition, good address, and ability to bear rouble and pain. Any one with opposite qualities should not e admitted as a pupil.

A Bráhmaṇa will conduct the ceremony in an auspicious lunar day, star and moment, on a pure, even, square mound or altar, four cubits in dimension and situated towards the east or north. This mound of earth, should be smeared with cow-dung and covered with *kus'a* grass (*Poa cynosuroides*). Then the gods should be worshipped with rice, fried rice, flowers and jewels, and Bráhmaṇas and physicians propitiated with presents. The initiating Bráhmaṇa, after marking a line and sprinkling the spot with water, will place the Bráhmaṇa pupil on his right side and a fire before him, and then light it according to sacrificial rules, with the wood of *khadira* (*Acacia catechu*), *palás'a* (*Butea frondosa*), *devadáru* (*Cedrus deodara*) and *vilva*, (*Ægle marmelos*) steeped in curdled milk, honey and clarified butter; or instead of these, the wood of *vaṭa* (*Ficus Bengalensis*), *jajna dumbara* (*Ficus glomerata*), *As'vattha* (*Ficus religiosa*), and *madhúka* (*Bassia latifolia*) may be substituted. Then uttering the *mantra*, *Oṃ Bhuva Sháhá*, etc. the officiating Bráhmaṇa will offer oblations of clarified butter on the fire to the gods and *ṛishis* or learned sages, and cause his pupil to do the same. A Bráhmaṇa can initiate pupils of three classes, namely, Bráhmaṇa Kshatriya and Vais'ya. A Kshatriya can do the same for two classes and a Vais'ya can initiate a Vais'ya only. Some say a Sudra of good family and character may be admitted as a pupil but without the recitation of the mantras. Then the tutor after taking his pupil three times round the fire, and invoking the god of fire as witness, will thus address him :—"You should give up lust, anger, avarice, folly, vanity, pride, envy, rudeness, deception, falsehood, idleness and all other reprehensible conduct You should always have your hair and nails cut short, shoul put on red coloured cloth, lead a pure life, avoid sensual inte course and be ready to obey your superiors. You should remain, go about, lie down, sit down, eat and study according to my wishes, and you should always be ready to seek my welfare. If you fail in this your duty, you will be committing sin, and your learning will be useless and unknown. On the other hand if while you act dutifully towards me, I behave improperly towards you, I will commit sin and my learning will be fruitless. It is the duty of all good physicians to treat gratuitously with his own medicines all Brahmaṇas, spiritual guides, paupers, friends, ascetics, neighbours, devotees, orphans, and people who come from a distance as if they were his own friends. Hunters, fowlers, outcasts, and sinners should not be treated. By acting in this way one makes himself known as learned and attains friends, fame, virtue, wealth, and objects of desire.

The student should not read on the eighth, fourteenth, and fifteenth days of both the new and full moons, at the morning dawn or evening twilight, and when there is thunder and lightening at unusual seasons, when the king of an independent territory is ill, after visiting a burning ground, after performing the funeral ceremonies, during war, great festivals, or natural calamities as earthquake, fall of meteors, etc. Neither must the student read on such other days not mentioned above, when Brahmaṇas do not study, nor must he read when he is impure.

CHAPTER III.

On the Contents of this work.

It has been already stated that the hundred and twenty chapters of this work will be explained in five books. Of these the first book or *Sútra-sthána* will contain forty chapters, *Nidána-sthána*, sixteen chapters; *S'áríra-sthána*, ten chapters; *Chikitsita-sthána*, forty chapters and *Kalpa-sthána*, eight chapters. After these the *Uttara-tantra* will contain sixty-six chapters. The following are the contents of this work:

Book 1st, Sútra-sthána.

Chapter I. Origin of the *A'yurveda*.
Chapter II. Initiation of students.

Chapter III. On the contents of this work.

Chapter IV. On the importance of understanding this work thoroughly when studying it.

Chapter V. On the requisites or necessary articles for surgical practice.

Chapter VI. The six seasons.

Chapter VII. Blunt surgical instruments and appliances.

Chapter VIII. Cutting instruments.

Chapter IX. Practical training or instructions in surgical operations.

Chapter X. On the mode of visiting and observing the sick.

Chapter XI. Caustics, their preparation and uses.

Chapter XII. Actual cautery.

Chapter XIII. Leeches.

Chapter XIV. On the blood.

Chapter XV. On the humours, called air, bile, phlegm and the constituent tissues and the excretions of the body.

Chapter XVI. On piercing the lobules of the ears.

Chapter XVII. Immature and mature inflammation.

Chapter XVIII. On local applications and bandages for inflamed parts.

Chapter XIX. On the general treatment of inflammation.

Chapter XX. On articles of diet and the winds with r ference to their influence on health.

Chapter XXI. On the humours of the body and the origin of inflammation.

Chapter XXII. Signs of inflammation in different organs and characters of the discharges from them.

Chapter XXIII. Prognosis of inflammation.

Chapter XXIV. Classification of diseases.

Chapter XXV. Eight different forms of surgical treatment.

Chapter XXVI. Symptoms of foreign bodies (*S'alya*).
Chapter XXVII. Treatment of *S'alya* or foreign bodies, &c.
Chapter XXVIII. Unfavourable or fatal symptoms of inflammation.
Chapter XXIX. On the prognosis of disease from consideration of the characters of the messengers sent by the patient to call the physician, and from dreams, &c.
Chapter XXX. On prognosis from consideration of the state of the five senses.
Chapter XXXI. On certain unfavourable symptoms or signs of impending death.
Chapter XXXII. The same subject continued or other signs of impending death.
Chapter XXXIII. On incurable diseases.
Chapter XXXIV. On the preservation of the lives of kings and the four essentials of medical treatment.
Chapter XXXV. On prognosis from observation of the age, sex, vigour and the nature of complaint, &c. of the patient.
Chapter XXXVI. Treatment of inflammation by local applications.
Chapter XXXVII. On the properties of soil with reference to the drugs produced in them.
Chapter XXXVIII. Classification of medicines.
Chapter XXXIX. Evacuants and alteratives, &c.
Chapter XL. On the tastes, properties, forces and effects after digestion of medicines.
Chapter XLI. Properties of medicines with reference to their physical characters.
Chapter XLII. Properties and classification of medicines with reference to the six tastes.
Chapter XLIII. Emetics.
Chapter XLIV. Purgatives.

Chapter XLV. On water, milk, urine, wine and other liquid substances.
Chapter XLVI. On the properties of various articles of diet.

These are the forty-six chapters of the first book called *Sútra-sthána* or first principles, because this book is the beginning and foundation of medical science and in it are explained the meanings of technical terms and the classification of medicines, &c.

BOOK II.

NIDA'NA-STHA'NA.

Chapter I. Diseases of the nervous system.
Chapter II. Hæmorrhoids.
Chapter III. Calculus in the bladder.
Chapter IV. Fistula in ano.
Chapter V. Skin diseases.
Chapter VI. On urinary disorders.
Chapter VII. Abdominal tumors and dropsy.
Chapter VIII. On mal-presentations of the fœtus during labour or unnatural labour.
Chapter IX. On *Vidradhi* (deep-seated or internal abscess).
Chapter X. On Erysipelas, sinus and diseases of the breast.
Chapter XI. On glandular enlargement, tumours, a Bronchocele.
Chapter XII. On enlargements of the scrotum, vener disease and Elephantiasis.
Chapter. XIII. Minor affections.
Chapter XIV. On sores on the penis caused by the application of an insect called *s'úka* with the object of enlarging the organ.
Chapter XV. Fractures.
Chapter XVI. On diseases of the mouth.

This book is called *Nidána-sthána* because it treats of the causes and symptoms of diseases.

BOOK III.

S'A'RÍRA-STHA'NA.

Chapter I. On the theory of the creation of man and the human soul.
Chapter II. On the semen and the menses and the means of purifying them.
Chapter III. On generation and pregnancy.
Chapter IV. Description of the fœtus.
Chapter V. Anatomy of the human body.
Chapter VI. The vital parts of the body.
Chapter VII. *Sirá* (veins).
Chapter VIII. On venesection.
Chapter IX. *Dhamaní* (arteries).
Chapter X. On the management of pregnancy and parturition, and the treatment of infants.

These ten chapters have been explained in *S'áríra-sthána* by Dvanantari to enable physicians and devotees to obtain a knowledge of the constitution of the human body.

BOOK IV.

CHIKITSITA-STHA'NA.

Chapter I. On inflammation, wounds and ulcers.
Chapter II. On the symptoms and treatment of wounds.
Chapter III. Treatment of fractures.
Chapter IV. On the general treatment of diseases due to deranged air (chiefly diseases of the nervous system).
Chapter V. On the treatment of the major diseases of the nervous system including leprosy.
Chapter VI. On the treatment of Hæmorrhoids.
Chapter VII. On the treatment of stone in the bladder and on lithotomy.

Chapter VIII. Treatment of Fistula in ano.
Chapter IX. Treatment of skin diseases.
Chapter X. Treatment of skin diseases continued.
Chapter XI. Treatment of urinary disorders.
Chapter XII. Treatment of eruptions on the skin in Diabetes, &c.
Chapter XIII. Treatment of Diabetes.
Chapter XIV. Treatment of abdominal enlargements and ascites.
Chapter XV. Treatment of malpresentations of the fœtus.
Chapter XVI. Treatment of deep-seated and internal abscesses.
Chapter XVII. Treatment of Erysipelas.
Chapter XVIII. Treatment of glandular affections, tumours and Bronchocele.
Chapter XIX. Treatment of the enlargement of the scrotum.
Chapter XX. Treatment of minor affections.
Chapter XXI. Treatment of sores on the penis called *S úkaroga*.
Chapter XXII. Treatment of diseases of the mouth.
Chapter XXIII. Symptoms and treatment of different varieties of swellings.
Chapter XXIV. General rules for the prevention of disease.
Chapter XXV. Treatment of diseases of the external ear.
Chapter XXVI. Treatment for increasing the strength and virile power in weak persons.
Chapter XXVII. *Rasáyana* or tonic treatment for the prevention of disease and decay.
Chapter XXVIII. Means of strengthening the memory and prolonging life.
Chapter XXIX. On the use of *s'omarasa* as a preventive of natural disease.
Chapter XXX. On the eighteen medicines for prevention of disease called *Mahaushadhi*.

Chapter XXXI. On the use of medicated oils.
Chapter XXXII. On medicated baths for inducing perspiration.
Chapter XXXIII. On emetics and purgatives.
Chapter XXXIV. Treatment of diseases caused by improper use of emetics and purgatives.
Chapter XXXV. On the use of enemata.
Chapter XXXVI. Treatment of diseases caused by misuse of enemata.
Chapter XXXVII. Enemata of decoctions in oil and on injections into the bladder.
Chapter XXXVIII. Enemata of decoctions in water, &c.
Chapter XXXIX. On the treatment of patients after the use of enemata, purgatives, &c.
Chapter XL. On inhalations, medicated snuffs and gargles.

These forty chapters have been described in the book called *Chikitsá-sthána*.

BOOK V.

KALPA-STHA'NA.

Chapter I. On the preservation of food and drink from poison.
Chapter II. On vegetable and mineral poisons.
Chapter III. On animal poisons.
Chapter IV. On snake-bites.
Chapter V. Treatment of snake bites.
Chapter VI. On the bites of rats, dogs and jackals.
Chapter VII. On the preparation of some antidotes.
Chapter VIII. On insect-bites and their treatment.

These eight chapters are called *Kalpa-sthána* as they describe the symptoms and treatment of poisons. Altogether 120 chapters have been described. Now the *Uttara-tantra* will be treated of. It is called *Uttara-tantra* because it is mentioned last of all. It is also called *Aupadravika* inasmuch as it treats of important diseases.

BOOK VI.

UTTARA-TANTRA.

Chapter I. On the eye and its diseases.

Chapter II. Diseases occurring at the places of union of the different membranes of the eye.

Chapter III. Diseases of the eyelids.

Chapter IV. Diseases of the conjunctiva or white of the eye.

Chapter V. Diseases of the cornea.

Chapter VI. Diseases involving the entire globe of the eye.

Chapter VII. Diseases of the lens, Cataract, Amaurosis, &c.

Chapter VIII. Treatment of eye-diseases.

Chapter IX. Treatment of Ophthalmia caused by derangement of the air.

Chapter X. Treatment of Ophthalmia caused by deranged bile.

Chapter XI. Treatment of Ophthalmia caused by deranged phlegm.

Chapter XII. Treatment of Ophthalmia caused by deranged blood.

Chapter XIII. On scarification of the eyes.

Chapter XIV. On the treatment of diseases requiring incisions.

Chapter XV. On the treatment of diseases requiring removal as Pterygium, tumours, &c.

Chapter XVI. Treatment of inverted eye-lashes.

Chapter XVII. Treatment of diseases of the lens, &c.

Chapter XVIII. On the different applications to the eyes.

Chapter XIX. On the treatment of wounds and injuries to the eyes.

Chapter XX. Diseases of the ears.

Chapter XXI. Treatment of diseases of the ears.

Chapter XXII. Diseases of the nose.
Chapter XXIII. Treatment of diseases of the nose.
Chapter XXIV. Symptoms and treatment of Catarrh of the nose or Coryza.
Chapter XXV. Diseases of the head.
Chapter XXVI. Treatment of diseases of the head.

These 26 chapters are called *S'álakya tantra.*

Chapter XXVII. On the symptoms caused by the nine *grahas* or evil spirits affecting children.
Chapter XXVIII. On the treatment of *Skanda-graha.*
Chapter XXIX. Treatment of *Skanda apasmára-graha.*
Chapter XXX. Treatment of *S'akuní-graha.*
Chapter XXXI. Treatment of *Revatí-graha.*
Chapter XXXII. Treatment of *Pútaná-graha.*
Chapter XXXIII. Treatment of *Andha pútaná-graha.*
Chapter XXXIV. Treatment of *S'ítapútaná-graha.*
Chapter XXXV. Treatment of *Maṇḍiká-graha.*
Chapter XXXVI. Treatment of *Naigamesha-graha.*
Chapter XXXVII. On the origin of these nine grahas.
Chapter XXXVIII. Symptoms and treatment of diseases of the female genitals.

These subjects form the book called *S'áríra-adhyáya* of *Kaumára tantra.*

Chapter XXXIX. Fever.
Chapter XL. Diarrhœa.
Chapter XLI. Consumption.
Chapter XLII. Treatment of *Gulma* (tumours in the pelvis) and *S'úla* or severe pain in the abdomen.
Chapter XLIII. Symptoms and treatment of diseases of the heart.
Chapter XLIV. Symptoms and treatment of Anæmia and Jaundice.

Chapter XLV. Symptoms and treatment of hæmorrhages from the internal organs (*Raktapitta*).
Chapter XLVI. Symptoms and treatment of fainting.
Chapter XLVII. Diseases caused by abuse of alcoholic liquors.
Chapter XLVIII. Thirst and its treatment.
Chapter XLIX. Vomiting and its treatment.
Chapter L. Hiccup and its treatment.
Chapter LI. Asthma and its treatment.
Chapter LII. Cough and its treatment.
Chapter LIII. Hoarseness or loss of voice and its treatment.
Chapter LIV. Intestinal worms, &c.
Chapter LV. Tympanites.
Chapter LVI. *Visúchiká* or Cholera.
Chapter LVII. Loss of appetite.
Chapter LVIII. Suppression and retention of urine.
Chapter LIX. Different sorts of morbid urine.

These chapters constitute the *tantra* called *Káya-chikitsá*.

Chapter LX. Diseases caused by spirits and their treatment.
Chapter LXI. Epilepsy and its treatment.
Chapter LXII. Insanity.

These three chapters are called *Bhútavidyá* or demonology.

Chapter LXIII. On the 63 combinations of the six t
of material objects.
Chapter LXIV. Rules for the preservation of health.
Chapter LXV. *Tantrayukti* or some rules of grammar.
Chapter LXVI. On the various combinations of th
humours in their derangements.

These four chapters are like the ornament of medical science.

This *tantra* is called *uttara* by the learned sages, because it is superior. On account of its being a compilation of numerous subjects it is also called superior, *uttara* and *pas'chima* or later tantra. *S'álakya-tantra*, *Kaumárabhṛitya-tantra*, *Káyachikitsá-tantra* and *Bhútavidyá-tantra*, these four tantras have been described in the *Uttara-tantra*. The subjects of *Vájíkaraṇa* and *Rasáyana* have been included in the book called *Káyachikitsá*. The treatment of poisons has been detailed in *Kalpakhanda*, and *S'alyajnána* or surgery has been explained in all parts of the work. This *A'yurveda* with its eight divisions was first made known by Dhanvantari. Practitioners who study it properly can become the saviours or restorers of human lives in this world. The *s'ástras* must be studied and then the art of healing learned practically. The practitioner who knows both the *s'ástras* and the practical details of treatment is respected by the king. On this subject there are the following verses:

The physician who is only learned in the *s'ástras*, but is unacquainted with the practical details of treatment becomes senseless or incapable of action when he gets a patient, just as the coward becomes senseless in the field of battle. On the other hand the man who knows the practical details of treatment, but from self-confidence does not study the *s'ástras*, does not obtain the esteem of good men. Such a physician deserves to be killed by the king. Both these classes of unqualified physicians are unfit to practice their calling just as Bráhmaṇas who have read but half the *Vedas* cannot perform *vedic* ceremonies, or as a bird with one wing cannot fly in the air.

Medicines like nectar, given by an ignorant physician, act like poisons, thunder or other instruments of destruction. Hence these two classes of ignorant practitioners should be avoided. Those physicians who do not know the proper use of cutting instruments, inunction of oils, &c., merely kill people from their avarice. They are allowed to exist or practice from the carelessness of the king. As the chariot with two wheels can be used in the field of battle, so the intelligent physician with both theoretical and practical knowledge can successfully practice his profession.

Now, my son, hear from me how this *s'ástra* is to be studied. When the student attends at the hour of receiving instruction with purified body, dressed in his upper garment or sheet, and his mind perfectly calm, the tutor will teach him according to his capacity either one quarter, one half or an entire *s'loka* at a time. The pupil should repeatedly recite this. In this way each pupil should be taught separately, and the tutor should recite the entire *s'loka* after his pupil. The recitation should be made slowly yet without delay or fear, with the eyes, eyebrows, lips and hands fixed, in a middling voice, neither too loud nor too indistinct and with distinct pronunciation without any nasal twang or suppression of letters. No one should pass between the tutor and his pupil while teaching is going on. On this subject there are the following verses :

If the student will study according to the abovementioned rules with pure body, devotion to his tutor, intelligence and without idleness and sleep, he will be able to attain a complete knowledge of this *s'ástra*. The student who wishes to attain a thorough knowledge of this *s'ástra* and success in his profession, should try to attain good speech or address, knowledge of material objects, boldness in action and practical skill.

CHAPTER IV.

ON THE IMPORTANCE OF UNDERSTANDING THE *s'ástras* THAT ARE STUDIED.

Learning by rote without understanding the meaning of what is thus committed to the memory is like the ass carrying a load of sandalwood, and is labour without profit. On this subject there is the following verse :

As the ass which carries a load of sandalwood perceives the weight but not the fragrance of the sandal, so the dunces who study numerous *s'ástras* without understanding their meaning, bear their weight only.

Hence every word, sentence and couplet or *s'loka* of these hundred and twenty chapters ought to be rehearsed and explained repeatedly. Because material objects, their tastes, properties, powers, the humours, constituent parts of the body, viscera, vital parts, veins, nerves, joints, bones, the analysis of the contents of the gravid uterus, the extraction of foreign bodies which cannot be seen, the diagnosis of wounds and fractures, the prognosis of diseases as to their curable, incurable or relievable character, and a thousand such other important questions overpower the intellects even of the clear-headed and clever, not to speak of men with shallow understandings. Hence every word, phrase and sentence ought to be heard and recited over and over again. When any subject relating to other *s'ástras* occur in any part of this work, it should be learned from persons well acquainted with those *s'ástras,* for a person knowing one *s'ástra* only, cannot understand the other *s'ástras.* On this subject there are the following verses :

The man who knows only one *s'ástra* cannot properly understand any subject, hence physicians ought to be acquainted with various *s'ástras.* The student who, after receiving instruction in the *s'ástra* from the lips of his tutor, studies it repeatedly is the genuine physician, others are rogues.

Of the various treatises on *S'alya-tantra* or surgery the works of Aupadhenava, Aurabhra, Sus'ruta, and Pauskalávata are regarded as the principal or original works on the subject.

CHAPTER V.

ON THE ARTICLES NECESSARY FOR SURGICAL PRACTICE.

The treatment of diseases is divisible into three stages, namely, preliminary, principal, and after treatment. These three stages will be detailed in the treatment of individual diseases. Surgery being the most important subject in this work, I will first lecture on surgical operations and the articles necessary for performing them.

There are eight varieties of surgical operations, namely, incision, division, scarification, puncture, probing, extraction of foreign bodies, letting out pus, &c., and the application of sutures. The physician who wishes to perform any of the above-mentioned surgical operations should first of all procure the following articles, namely, blunt instruments, cutting instruments, caustics, cautery, probe, horn, leeches, bitter gourd, a tent or bougie made of black stone, cotton, pieces of cloth, thread, leaves, jute, honey, clarified butter, suet, milk, oil, emmollient and astringent fluids, liniments, pastes, fan, cold water, hot water, iron pans and steady, calm and able-bodied assistants. Surgical operations should be performed on an auspicious lunar day, star, and moment, after worshiping or propitiating the god of fire, Bráhmaṇas and physicians with curdled milk, rice from unstained paddy, drinks and jewels, and after offering presents and blessings. The patient should take some light food. He should then be seated with his face to the East and secured or restrained. The surgeon should sit with his face towards the West and take care not to injure any vital part, vein, nerve, joint, bone or artery. The instrument should be introduced in the direction of the hairs of the skin, till pus is seen. It should then be quickly withdrawn at once. In large abscesses the incisions may be of the depth of one or two fingers, breadth. Abscesses with large base, rounded form, uniform maturation and definite shape are readily cured. On this subject there are the followig verses :

That abscess is fit for opening which has a large base and size and a well-defined shape, which is ripe and is not connected with any important organ. The surgeon who operates should be bold and quick. He should not tremble, perspire or faint at the sight of blood, and his instrument should be sharp. If on the first incision the abscess is not emptied, it should be explored and another incision made. On this subject there is the following verse.

Incisions should be made in those directions in which there are sinuses or collections of pus so that matter may not bag. The incisions should be transverse in the following places, namely, eyebrows, cheek, temple, forehead, eyelids, lips, gums, axilla, abdomen, groin. They should be circular on the palms and soles and semi-circular on the anus and on the penis. If these rules are not observed, there may be much pain from division of the nerves and blood-vessels, delay in healing and high granulations. In operations for mal-presentations of the fœtus, ites, piles, calculus in the badder, fistula-in-ano, and affections he mouth, the patient should not be fed, but should undergo operation in empty stomach.

After the operation the patient should be soothed with cold ater, then the abscess should be pressed by the fingers all round empty it thoroughly, rubbed on the surface, washed with an astringent decoction and wiped with a piece of cloth. A tent thickly smeared with a paste of sesamum seed, honey and clarified butter should be introduced into the opening made and the abscess covered with a paste or poultice. A piece of cloth neither very thin nor very thick should be placed over this and the whole tied with a bandage. Fumigation with drugs that relieve pain should be applied to the part and *mantras* for preserving from dangers should be had recourse to. Pastils made of *guggulu* (bdellium), *aguru* (wood of *Aguilaria agallocha*) resin, white mustard seed, *vacha* (root of *Acorus calamas*), rock-salt, *nim* leaves and clarified butter, should be burned in the room. When the pastils have been consumed, the remaining clarified butter should be applied to the vital parts such as over the heart, &c. Water from an earthen jar should then be sprinkled in the room and the following preserving incantation (*mantra*) read :

For obviating the malice of the *kṛityas* (a sort of female deity) and of the *rakshas* I am performing the rite of preservation. May Brahma approve of it. May Brahma and the other deities destroy the *nágas*, *pis'áchas gandharvas*, spirits of ancestors, *yakshas* or *rakshasas* who may trouble you. May those spirits which go about at night in the earth and sky and which dwell in the habitations of men after being saluted by you, preserve you from danger. May the *munies* or sages born from Brahma, the sages residing in heaven, the mountains, the rivers and the seas protect you. May the god of fire protect your tongue, the god of air your *práṇaváyu*, the demigod named *Soma* your *vyánaváyu*, the thunder your *apánaváyu*, the lightning your *udánaváyu*, the clouds your *samánaváyu*,[1] the god of strength *Indra* your strength, Manu the two tendons of your neck hot your intellect, the *gandharvas* your desires, Indra your goodr nts. *Varuna* your knowledge, the sea your navel, the sun your ey ar the regions of space your ears, the moon your mind, the lun d asterisms your beauty, the nights your shade, the waters yo m semen, the annual plants your hairs, the ether your bodily ethe s the earth your body, *Vais'vánara* your head, *Vishnu* your power, *Náráyana* your virility or manhood, Brahma your soul and the star named *Dhruva* protect your eyebrows. These deities are constantly present in your body. May they always protect you and may you attain long life. May Brahma and the other gods bless you. May the moon, the sun, *Nárada*, *Parvataṛishi*, *Agní*, *Váyu*, the attendant gods of *Indra* and the *Rakshas* created by

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[1] *Práṇa*, *Vyána*, *Apána*, *Udána* and *Samánaváyu* are the names of the five forms of air supposed to exist within the body.

Brahma bless you. May your life be prolonged. May the causes of destruction of crops be at rest and may you be free from pain. Amen.

May you attain long life by my having recited this Vedic *mantra* which removes all diseases caused by the demi-goddess named *Kṛityá*. After this ceremony for the preservation of the patient, he should be taken inside the room and instructions should be given regarding his diet, clothing, movements, &c.

On the third day the bandage should be opened and re-applied. This should not be done in a hurry on the next day. If the dressing is opened on the second day, the sore will not granulate soon and become very painful. The astringent washes, plasters, and bandages for the part, and directions for diet and general conduct of the patient, &c., should be given suited to the condition of the sore, the strength and state of the humours, and the seasons, &c. If the abscess retains within it any bad discharges, it will not granulate soon, and from the least irregularity it will become inflamed and swollen. On this subject there are the following verses.

Hence the abscess should be allowed to granulate, after it is free from impurity both in its interior and outside. Even after the sore has commenced to granulate, indigestible food, exercise and sexual intercourse should not be indulged in, excitements from pleasure, anger or fear should be avoided, till the sore fills up to the level of the skin. The bandages should be opened every third day in the seasons called *hemanta*, *śisira* and *vasanta*, corresponding to winter and spring, and every second day during the seasons called *śarat*, *gríshma*, and *varshá* or the hot and rainy seasons. When the disease is very severe, however, this rule should not be observed, but, like a house on fire, it must be soon remedied. If there is severe pain from the operation, it will be relieved by the application to the part of a little liquorice mixed with tepid clarified butter.

CHAPTER VI.

DESCRIPTION OF THE SEASONS.

Kála or time is self-produced, without beginning, middle or end. The production and destruction of the different tastes of material objects, and the birth and death of human beings are subject to or caused by time. There are different opinions regarding the derivation of the word *kála*; viz., *kálam na líyate iti kála*, that is, it does not loose even its minutest portion; or *sankalayati kalayati vá bhutáni iti kála*, that is, it collects and sends living beings to death's door, &c. The sun by his peculiar motion divides time into *akshinimeshas*, *káshṭas*, *kálas*, *muhúrtas*, *horás*, *pakshas*, *másas*, *ṛitus*, *ayanas* and *yugas*. The portion of time occupied in pronouncing a short letter is called an *akshinimesha*. Fifteen *akshinimeshas* make one *káshṭa*. Thirty *kashṭas* make one *kála*. Twenty *kálas* make one *muhúrta*. The tenth part of a *kála* is also called *muhúrta*. Thirty *muhúrtas* make one day and night. Fifteen days and nights make one *paksha*. There are two *pakshas*, namely, light and the dark. These two *pakshas* make one lunar month. There are twelve months. Two months make one season, of which their are six, namely, *śisira*, *vasanta*, *gríshma*, *varshá*, *śarat*, and *hemant* The months *Mágh* and *Phálguna* constitute *śisira*; *Chaitra* an *Vais'ákha* constitute *vasanta*; *Jyaishṭa* and *Áshádha* constitute *gríshma*; *S'rávaṇa* and *Bhádra* constitute *varshá*; *Ás'vina* and *Kárttika* constitute *śarat*; *Agraháyaṇa* and *Pausha* constitute *hemanta*. The division of time by the sun and moon results in two *ayanas* named north and south according as the sun's path lies to the north or south of the Equator. The south or *dakshiṇa ayana* includes the three seasons of *varshá*, *śarat* and *hemanta*. In this half-year the moon is powerful, the tastes of acidity, saltishness and sweetness prevail in the order they are mentioned, and living beings gain strength. The north or *uttara ayana* includes the seasons of *s'isira, vasanta* and *gríshma.* In these seasons the sun is most powerful. The bitter, astringent and acrid tastes prevail and the strength of living beings gradually decrease: on this subject, there is the following verse:

The moon moistens the earth and the sun dries it. The air, with the assistance of these two, maintains all living beings.

The two *ayanas* make one year, and five years make one *yuga.* These divisions of time from *nimesha* to *yuga* come round like a revolving wheel; hence the period of a *yuga* is called by some *kála chakra* or a cycle.

There is another classification of the seasons, namely, into *varshá, s'arat, hemanta, vasanta, gríshma, právṛiṭ* with reference to their influence on the increase, derangement and rectification of the different humours of the body. Commencing from the month of *Bhádra* these seasons are constituted as follows: *Bhádra, Ás'vina* make *varshá; Kárttika* and *Agraháyaṇa* make *s'arat; Pausha* and *Mágha* make *hemanta; Phálguna* and *Chaitra* make *vasanta; Vais'ákha* and *Jyaishṭa* make *gríshma,* and *Ásháḍha* and *S'rávaṇa* make *právṛiṭ.*

In the rainy season annuals, such as grain, wheat, &c., commence to grow and are weak in their essential properties, the water is muddy, and the earth abounds with filthy matters from decomposing vegetables. The sky is cloudy, the soil moist with water, the bodies of living beings wet or moist, and the digestive fire weakened by air deranged by cold. From the use of these unripe annuals and dirty water, under the seasonal influences above mentioned, a form of dyspepsia with acidity is apt to be produced and which causes an excess of bile in the system. In the season called *s'arat* (autumn) the sky clears up, the moisture of the earth dries, and the excess of bile in the system, heated and diffused through the body by the sun's rays, causes the diseases which owe their origin to bile.

In the cold season the annuals ripen and attain their full properties, the water becomes clear, the sun's rays are milder and the bodies of animals are affected by cold air and frost. Under these several influences the use of the ripened annuals and of cold water brings on the form of dyspepsia, called *ámájírṇa*, marked by imperfect digestion. From the use of these emmolients, oily, cooling and heavy annuals of the season, there is accumulation of phlegm in the system. In the spring the bodies of animals are not so much affected by cold as in winter, and the accumulated phlegm of the latter season, diffused through the system under the influence of the sun's rays, produce those diseases which arise from deranged phlegm. In summer the annuals become very dry and tasteless, the water is light, and the bodies of animals are dry from the heat of the sun. The use of such annuals, and water, from their dryness, lightness and tastelessness, tends to accumulate air in the system. In the season called *právṛiṭ* (first half of the rainy season) the earth is soaked with water and the bodies of animals are moist. In this season the accumulated air of the former season is diffused throughout the body by the cold air and rain, and thus are produced the diseases which are caused by deranged air. The causes of the accumulation and derangement of the three humours of the body, namely, bile, phlegm and air, are thus described. It is necessary to take remedial measures against those accumulations of the humours in the second half of the rainy, cold and hot seasons and their derangement in autumn, spri and first half of the rains. Diseases caused by deranged bile a relieved in the cold weather, those caused by phlegm in summer, those caused by air in the rainy season. The natural accumulation, derangement and relief of the three humours are thus described.

With regard to the influence of the different portions of the day on the humours of the body, it should be understood that the action of the forenoon is analogous to that of the spring season, of noon to that of the hot season, of afternoon to that of the first half of the rains, of the two dawns to that of the second half of the rains, of midnight to that of the autumn and the latter part of the night to that of the cold season. In this way the different portions of the day and night affect the accumulation, derangement and relief of the three humours, just as the six seasons of the year influence them.

When the seasons are regular in their course, the annuals and water are also wholesome, and people using them gain longevity, strength and virility. The irregularity of the seasons is owing to destiny or fate. When cold, heat, wind and rain do not appear in proper time or are irregular in their course, the annuals and water become unwholesome, and their use causes various diseases, or even the breaking out of an epidemic pestilence. Sometimes with regular seasons and wholesome annuals and water, a country suffers from destructive pestilence, owing to the wrath of the *kṛityas, pis'áchas, rákshasas,* &c., or the immorality of the people. Sometimes the inhabitants of a country are affected with cough, asthma, vomiting, catarrh, headache, or fever, &c., owing to the wind bringing exhalations from poisonous annuals and flowers, although there may be no derangement of the humours in those individuals at the time. Such epidemic affections sometimes occur from the peculiar influence of the planets and stars; or some bad omen or sign in the dwelling house, in a wife, in the bed or the sitting place, in a conveyance or its bearers, in jewels or gems; or any other article may bring on disease of the above description. When such epidemic pestilence prevails, leaving the place, propitiatory and expiatory rites, prayers, burnt-offerings, offerings, salutations, meditations, religious observances, kindness, charity, sacrifices and devotion to the gods, brahmans and spiritual guides should be practised. By these means the evil may be averted and good result.

Now I will describe the characters of the different seasons when they are regular in their course. In *hemanta* (first two months of the winter season) cold wind blows from the north, the atmosphere is dusky and smoky, the sun is concealed from view by frost, and the tanks and other receptacles of water are covered with snow. Crows, rhinoceroses, buffaloes, sheep, elephants, &c. become strong and bold, and the plants called *lodhra (Symplocos racemosa)*, *priyangu* (*Aglaia Roxburghiana*) and *punnága* (*Colophyllum inophyllum)* bear flowers.

In the season called *S'isira* (last two months of the cold season) there is intense cold, rain and wind prevail in every direction, and all the signs of the previous season or first half the cold weather continue. In spring the atmosphere clears up, the groves are adorned with the flowers of the *kinśuka* (*Butea frondosa*), *ambuja* (*Nelumbium speciosum*), *vakula* (*Mimusops elengi*), *chúta* (*Mangifera Indica*), *aśoka* (*Jonesia asoka*), &c. The delightful songs of the *bhramara* (black bee), *kokila* (Indian cuckoo) and other birds are heard, the wind blows from the south and the tanks are beautiful and sparkling.

In the hot weather the rays of the sun are scorching. An unpleasant wind blows from the south-west, the earth becomes hot, the rivers stagnant, all sides seem as if on fire, the pair of birds called *chakraváka* (ruddy goose) wander about from thirst, and all the beasts of the forest become restless from thirst. The creepers, grasses and twining plants wither, and the larger trees shed their leaves or become leafless. In the season called *právṛiṭ* the sky becomes covered with clouds brought by the west wind, and there are heavy showers of rain with tremendous thunder and lightning. In this season the earth becomes bright with tender green grass and a red insect called *indragopa* (cocheneal), and the plants called *kadamba* (*Authocephalus kadamba*), *nípa* (variety of *kadamba*), *kuṭaja* (*Hollarbena antidysenterica*), *sarja* (*shorea robusta*) and *ketakí* (*Pandanus odoratissimus*), are adorned with flowers.

In the rainy season the rivers overflow and the trees on their banks are borne down by the current. The tanks are ornamented with full blown water-lilies and blue lotuses. The earth is covered with water, and level grounds and hollows on its surface cannot be distinguished. The fields are adorned with various sorts of corn. Rain falls without much thunder or noise, and the sun is hidden by the clouds in the sky.

In the season called *s'arat* (autumn) the sun's rays are pungent, the sky appears clear from the presence of the white clouds, water-lilies expand their petals in the tanks, and geese sport in them. The wet soil of the earth dries up, and all parts of it, whether plains, high or low lands, are covered with vegetation. The trees called *váṇa* (blue *Barleria cristata*), *saptáhva* (*Alstonia scholaris*), *bandhuka* (*Pentapetes phœnicea*), *káśa* (*Saccharum spontaneum*) and *asana* (*Terminalia tomentosa*) are adorned with flowers.

If there is any excess or irregularity or contrariety in the character of the seasons above described, the humours of the body are deranged. Those who wish to prevent disease should take measures to alleviate phlegm in spring, bile in autumn, and air in the rainy season.[1]

CHAPTER VII.

DESCRIPTION OF BLUNT SURGICAL INSTRUMENTS.

There are one hundred and one varieties of blunt surgical instruments, of which the human hand is the principal, inasmuch as without it no instrument can be used and the use of all instruments is under its control. These instruments are used for extracting foreign bodies which cause pain to both body and mind.

There are six classes of blunt instruments, namely, *svastika yantra* (curved or hooked instruments), *sandaṃs'a yantra*

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[1] It will be observed that two classifications of the seasons have been given in this chapter, which differ in the months allotted to each, and in which the sixth season is *śisıra* in one and *právṛiṭ* in the other. The annotator Ulvanácháryya quotes two explanations for this discrepancy. One is, that the 2nd classification given has reference only to the derangement of the humours. Another is, that it refers to the seasons as they occur in countries south of the Ganges.

(forceps) *tála yantra,* (with ends like the mouth of a fish), *nádí yantra* or tubular instruments, and *upa yantra* or accessory instruments. There are twenty-four sorts of *svastika yantras* or hooked instruments, two sorts of *sandam̲s'a yantras* or forceps, two sorts of *tála yantras,* twenty sorts of tubes, twenty-eight sorts of probes and sounds, and twenty-five sorts of accessory instruments. These instruments are generally made of iron, but sometimes of other metals resembling it, when iron is not available. The ends of these instruments are generally shaped like the faces of beasts of prey, deer or birds. Hence in giving instruction for the construction of instruments, these analogies should be pointed out as also directions given according to the writings in the *Áyurveda,* the precepts of tutors and the requirements of individual cases. They can be made also in imitation of other instruments of the kind. These instruments should be of moderate size, with their ends rough or smooth as required. Their make should be strong and shapely, and they should be able to grasp any object firmly.

Svastika yantras or hooked instruments should be eighteen fingers in length. The ends of the twenty-four varieties of these instruments are shaped like the mouths of the under-mentioned twenty-four sorts of animals, namely, lion, tiger, wolf, hyena, bear, panther, cat, jackal, deer, crow, heron, asprey, bluejay, vulture, owl, kite, hawk, *gṛiddha* (a kind of vulture) *krauncha* a kind of heron, *bhṛingarája* (a variety of shrike) *anjali karṇa, avabhanjana* and *nandimukha.* The last three birds cannot be identified. The part where the hooked end is soldered or (according to some the anterior third) of these instruments should be of the thickness of a *masura* (seed of *vicia lens*) and their ends for grasping foreign bodies should be hooked or curved. These instruments are used for extracting foreign bodies impacted in bones.

Sandam̲s'a yantra or forceps are of two sorts, namely, *sanigraha* (having the ends roughened or filed) and *anigraha* with smooth ends. According to another interpreter the two sorts of forceps, are as follows, namely, one jointed like the dressing forceps and the other with soldered blades like the artery forceps. They are sixteen fingers in length and are used for extracting foreign bodies from the skin, muscles, veins and nerves.

Tála yantras are twelve fingers in length. Their extremities are single or double, and curved like the mouth of the lips of a fish.[1] They are used in extracting foreign bodies from the nose, ears and outer canals.

Náḍí yantras or tubular instruments are of various sorts and used for various purposes. They have openings at one or both ends and are employed for extracting foreign bodies from the outer canals of the body, for the inspection of disease in them, for sucking out fluids or for helping in other ways in the treatment of disease. Their diameters are adapted to the size of the canals or passages into which they are introduced, or to the purposes for which they are employed. The following are the varieties of tubular instruments, namely, those used in the treatment of fistula-in-ano, piles, tumours, abscess, hydrocele, ascites, stricture of the urethra, stricture of the rectum, those used for enemata, injections into the bladder, and inhalations, and horns and gourds used for cupping.

S'aláká yantras or probes and sounds are of various sorts and used for various purposes. Their diameters and lengths are adopted to the purposes for which they are employed. There are two varieties of *śalákás* with their ends shaped like earthworms, two shaped like the wing of an arrow, two like the hood of serpents, and two have their ends hook-shaped. They are used for exploring abscesses and sinuses, for bringing together any divided internal parts, displacing any material from one part to another within the flesh or bones, and extracting any substance from them. Two varieties of probes have their ends shaped like the half of a pea and are slightly bent. These are used for extracting foreign bodies from the outer canals of the body. Six varieties of probes have their heads covered with cotton, and are used in wiping or cleaning abscesses, &c. Three varieties have their ends spoon-shaped with beaked mouths, and are used for applying caustic solution, &c.

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[1] The annotator Ulvanácháryya explains that the fish called *bheṭuli* has got a mouth shaped like an iron hook, used for closing doors. Instruments with one tála or hook resembles one lip of this fish, and those with two tálas resemble the entire mouth.

Three sorts of *śalákás* have their ends shaped like the ends of *jámbava* fruit of (*Eugenia jambolana*). Three have their ends hooked. These six varieties are used for applying the actual cautery. One variety of *śaláká*, used in extracting tumours from the interior of the nose, has its end of the size of half the seed of a jujube fruit, and shaped like a mortar that is depressed in the centre and with the edges sharp. There is a variety of *śaláká* for applying collyria to the eyes. It is of the thickness of a *masurá kaláya* (small pea), with both ends shaped like flower-buds. One variety of *śaláká*, used in clearing the urethra, has its diameter of the size of the stalk of the *málatí* flower (*Aganosma caryophyllata*).

Upayantras or accessary instruments are as follows.—Cord, braided hair, bandages, leather, bark of trees, twining plants, cloth, pebbles, stones, hammer, hands, feet, fingers, tongue, teeth, nails, mouth, hair, iron shoes for horses, branches of trees, spittle, stream of water, objects exciting pleasure, loadstone, caustics, fire and medicines. These various instruments are used or applied to the body or parts of the body, to the joints, viscera, veins, &c. according to the requirement of each part.

Twenty sorts of operations are performed with these *yantras*, namely, tearing, filling the eye, bladder or other parts with oil, &c., bandaging, bringing together separated parts, contracting expanded parts, removing from one part to another, transplanting of skin, exposing any part, pressing, clearing passages or canals, traction, extraction, and partial extraction of thorns, arrows, &c., elevating, depressing, breaking, exploring and stirring any foreign body lodged in the body, suction by horn

&c., exploring, puncturing, straightening, washing, blowing powders into the nose, and rubbing as of sand, &c., from the eyes.

S'alya or foreign bodies, &c., in the body are of innumerable varieties, hence the wise practitioner should vary the application of his instruments according to the requirements of each case.

Twelve sorts of defects may occur in *yantras*, namely, they may be very thick, made of impure iron, very long, very short, incapable of grasping, grasping unevenly, bent or soft. They may have their anterior portion or ends too much elevated or too soft, or their ends may be soft or very thin.

Those *yantras* which are free from the above defects and which are eighteen fingers in length are superior and should alone be used in surgical treatment.

When a *śalya* or foreign body is visible, it should be extracted by hooked instruments having their heads shaped like that of a lion, tiger, &c. When the foreign body is invisible it should be extracted by instruments with their heads shaped like the beaks of different birds. All foreign bodies should be extracted slowly or gradually, and according to the rules of the *A'yurveda* and the dictates of reason. Of all the varieties of *śvastika yantra* that called *kankamukha*, or having its end shaped like the beak of the heron, is the best, since it can be easily introduced and turned in all directions. It can extract the foreign body by firmly grasping it, and can be applied to all parts of the body without harm.

CHAPTER VIII.

OR SHARP EDGED INSTRUMENTS AND THE MODES OF USING THEM.

There are twenty sorts of cutting or sharp instruments, namely :—

1. *Maṇḍalágra* or round-headed cutting instruments.
2. *Karapatra* or saw.
3. *Vṛiddhipatra* or razor with two varieties.
4. *Nakhaśastra.* Instrument for cutting nails.
5. *Mudriká.* A cutting instrument of the size of the last phalanx of the index finger.
6. *Utpalapatraka* having the shape of the petal of the water-lily.
7. *Arddhadhára.* A knife or lancet with a single edge, the blade 2 inches long, the handle 6 inches.
8. *Súchí.* Needles.
9. *Kuśapatra,* resembling the leaf of kus'a grass.
10. *Aṭímukha,* shaped like the beak of the bird called *S'arálí,* (*Turdus ginginianus*).
11. *S'arárímukha* or scissors.
12. *Antarmukha.* Half moon shaped, with the cutting edge inside.
13. *Trikúrchaka.* Trocar with three cutting surfaces.
14. *Kuṭhárika.* A small axe-shaped instrument.
15. *Vríhimukha.* A small trocar with the head shaped like a grain of paddy.
16. *A'rá.* A long instrument with the sharp end of the size of a sesamum seed.
17. *Vetasapatraka,* cutting instrument like the leaf of the rattan.
18. *Vaḍiśa,* or hook.
19. *Dantaśanka.* Pincers for extracting teeth.
20. *Esháṇi,* or probes.

The *maṇḍalágra* and *karapatra* are used for incisions and scarifications. The *vṛiddhipatra*, *nakhaśastra, mudriká, utpalapatra* and *arddhadhára* are used for cutting and puncturing parts, the *súchí, kuśapatra, atímukha, śarárímukha, antarmukha* and *trikúrchaka* are used for letting out discharges or opening abscesses, &c. The *kuṭhárika, vríhimukha, árá, vetasapatraka* are used for functuring parts as in opening veins. The *vaḍiśa* and *dantaśanka* are for extracting. The *esháṇi* is for exploring or serving as a guide. Needles are used for sewing. Thus is explained the use of instruments in the eight varieties of surgical operations. The mode of holding these instruments at the time of operation is now being shortly explained. The *vṛiddhipatra* should be held at the junction of the blade and handle. In dividing parts, all instruments should be held in this way. The *vṛiddhipatra* and *maṇḍalágra* should be held with the hand a little raised. In scarifying, most instruments must be held in this way. In letting out collections of matter, &c. the forepart of the handle should be held. In letting out matter or opening abscesses in children, old men, delicate persons, timid people, females, kings, princes, the instrument called *trikúrchaka* should be used. The instrument called *vríhimukha* should be held by the thumb and the index finger, the handle being kept covered within the palm. The instrument called *kuṭhárika* should be held in position by the left hand, and struck with the index finger and thumb of the right hand joined together. The *árá, karapatra* and *esháni* should be held at their extremities. The remaining instruments should be held according to requirements in practice. The shapes of these instruments generally resemble that of the objects after which they are named. The length of the *esháṇi* and *nakhaśastra* should be eight fingers. The length of the needles will be mentioned afterwards.

The parts or ends of the instruments called *vaḍiśa* and *dantaśanka* are curved, set with sharp teeth and shaped like the leaf of the barley. Probes have their shape and ends like that of earth-worms. The instrument called *mudriká* is of the size of the last phalanx of the index finger. The *śarárímukha* should be ten fingers in length. These are also called *kartari* or scissors. The rest of the instruments should be six fingers in length.

These instruments should be made of good iron and have a fine edge and shape. They should be moderate in size and apable of being firmly grasped, and their ends should not be rful to look at. There are eight sorts of defects of these instruments, namely, they may be bent, blunt, uneven or dentated, too thick or thin, and too short or long. Instruments free from these defects should alone be used. Only the *karapatra* or saw should have rough or dentated edge because it is used for sawing bones.

The sharp edge of instruments used in incising should be of the breadth of a *masura* (seed of *Vicia lens*) and that of instruments used in scarifying, half a *masura*. Instruments used in opening abscesses, &c. should have their ends thin like a hair, and instruments used in puncturing parts should have their ends fine like half a hair. These instruments are tempered by being heated and then immersed in alkaline water, water or oil. Instruments used in dividing arrows, bones, or foreign bodies are tempered by immersion in alkaline water. Instruments used in incising, cutting or dividing muscles should be tempered in water, and those used in puncturing veins or dividing nerves should be tempered in oil. A smooth hone of the colour of *máshakalíya* (seed of *Phaseolus Roxburghii*) should be used for sharpening these instruments. For preserving their edges they should be preserved in cases made of the wood of the *śálmalí* (*Bombax malabaricum*). On this subject there are the following verses.

Those instruments should be used in surgical operations which are sharp enough to divide the hairs on the skin, which have a fine shape and which are of such a size that they can be firmly grasped.

Anuśastras or accessory cutting instruments may be made of bamboo-bark, crystal, glass, and *kuruvinda*, a sort of ruby (some say a sort of stone) which can be made to have a fine edge. Leeches, fire, caustics, nails, *goji* (leaves of *elephantopus scáber*) *śephálìká* (leaves of *nyctanthes arbor-tristis*), *śáka* (leaves of *Tectonia grandis*), young shoots or roots, hairs, and fingers are also used as accessory instruments. The first four varieties of accessory instruments, namely, bamboo-bark, crystal, glass and ruby should be used in incising and dividing parts in the case of infants, of persons too fearful of surgical instruments, or when these last are not available. Extraction and puncturing, if capable of being done by nails, should be performed with these. The mode of using caustics, fire and leeches will be explained afterwards. When it is necessary to let out matter from diseases in the mouth, eyelids, &c., it should be done with the leaves of *goji, śephálika* or *sáka.* Hairs, fingers and young roots may be used for exploring in want of probes. These instruments should be made of pure sharp iron by a blacksmith who is an expert in his handicraft. The physician who knows the use of surgical instruments always attains success; hence their use should be first learnt.

CHAPTER IX.

On practical training in Surgical Operations.

Even if the pupil is acquainted with all the *śástras,* the teacher, to make him properly qualified, should instruct him practically how to perform surgical operations and apply oils, &c. Without practical training, repeated recitation or hearing of lessons will not qualify a man for practice. Therefore the teacher should show his pupil how to incise, divide, extirpate, &c., by performing these operations on flowers and fruits, on gourds, water-melons, cucumbers, &c. Puncturing or letting out fluids, &c., should be shown by performing the operations on leather bags or bladders filled with water and mire or mud. Scarification should be practised on stretched pieces of leather covered with hair. The operation of piercing, such as opening veins, should be shown on the veins of dead animals or on the stalk of the water-lily, exploring by probe should be demonstrated on worm-eaten wood, bamboos, tubes, dried gourds, &c. Extraction should be shown in the jack fruit, pulp of bel fruit, *vimbí* fruit (of *Coccinea indica*), and the teeth of dead animals.

Opening of abscesses should be demonstrated on a lump of wax applied to a piece of *śálmalî* (wood of *Bombax malabaricum*). Sewing should be practised on thick cloth and on the edges of two pieces of soft leather. Bandaging should be practised on the limbs of human figures made of wood or clay. The mode of bandaging the root of the ear may be shown on a piece of soft flesh or the stalk of a water-lily. The application of caustics and actual cautery should be shown on pieces of soft flesh. The withdrawal of urine from the bladder or extraction of pus from the pelvic cavity by means of tubes should be demonstrated on an earthen pot with a spout, filled with water, or on a gourd, &c. On this subject there are the following verses.

The intelligent physician who practices surgical operations on these or other objects becomes a qualified operator, and does not faint when he is called to perform any operation on his patient. Hence the practitioner who wishes to attain proficiency in the use of fire, caustics and instruments, should perform these operations in the same way as he has practised them on the above mentioned objects, &c.

CHAPTER X.

DUTIES OF PHYSICIANS.

After having studied the *śástras* and learnt their meaning, after having attained the proficiency of reciting the *śástras* and obtained a practical knowledge of surgical treatment, the physician should obtain the permission of the king and commence to practice. He should keep his hairs and nails short and his person pure, he should wear white clothes, put on shoes and have a stick and an umbrella. His appearance should be humble, and his mind pure and guileless. He should be polite in his speech and friendly to all living beings, and he should have an attendant of good character.

The physician in passing should observe the favourable or unfavourable omens of the messenger, the vulture, and other objects such as empty or full water-pots, &c. On entering the house of the patient, he should sit down and examine his patient by sight, touch, and questions.

Some say that most diseases may be diagnosed by these three modes of enquiry, but this is not correct. There are six ways or modes of learning the nature of diseases, *viz.*, by the five senses and by questioning. By the sense of hearing we can learn whether the discharge let out from an abscess is frothy, for when air is mixed with the blood, the discharge comes out with a noise. This and other phenomena of disease can be learnt by the ear. By the sense of touch we can feel the heat or coolness, the roughness or smoothness, thickness or thinness of the skin, &c., in fever, dropsy and other diseases. By the eye we can ascertain the corpulence or emaciation, vitality, energy, change in colour, &c. of the patient. By the sense of taste the character of urine in diabetics and other urinary disorders can be ascertained. By the sense of smell, the odour peculiar to inflammatory diseases that will prove fatal, may be known.

By questioning, the physician can learn the nature of the country, time or season, the patient's caste, causes of his fear, nature of his pain, strength and appetite. How he passes his urine, wind and fœces, the character of the menstrual flow, the duration of the disease, &c. Hence the physician should ascertain the nature of the disease from the people near the patient by enquiries suited to each case. On this subject there are the following verses :

If the disease assumes a serious aspect externally without really being so, if the symptoms are not correctly described by the patient, or if the physician makes any error in diagnosis, then the latter is confounded. Having thus fully examined the disease, the physician should cure curable diseases, relieve those which can be relieved only, and give up all incurable cases.

As a general rule, patients who do not get well after a year

6

should be given up, for even curable diseases generally become incurable after the lapse of a year.

The physician who wishes to attain virtue, wealth, objects of desire and fame, should carefully ascertain the character of the disease before undertaking the treatment of the following classes of people. Brahmans learned in the Vedas, kings, women, children, old men, timid people, servants of kings, cunning and weak persons, slanderers of physicians, poor, miserly or irritable people, orphans, persons who conceal their diseases, or who have no control over their actions. On this subject there is the following verse:

The physician should not sit together, talk or joke with females, and, excepting eatables, should accept no other presents from them.

CHAPTER XI.

Preparation and use of Alkalies and Alkaline Caustics.

Of all cutting instruments and accessory cutting instruments caustics are superior inasmuch as they perform the work of incisions, punctures, and scarifications, relieve derangements of the three humours, *viz.*, air, bile, and phlegm, and uniformly affect the diseased part to which they are applied. *Kshára* (caustics) are so called because they remove diseased parts and destroy the skin and flesh. From being composed of numerous medicines they can affect the three humours. Caustics being white in colour are cooling or of lunar origin. This origin is not inconsistent with their burning, escharotic and lacerating properties. Being composed of numerous heating medicines, caustics are acrid, hot and pungent. They promote suppuration, destroy parts, improve unhealthy sores and promote granulations, dry up discharge, stop bleeding and abrade the skin. Their internal use removes worms, acidity, phlegm, skin diseases, some poisons and corpulence. Their excessive use causes impotence.

Alkalies are of two sorts, namely, for external application and internal administration. They are used externally in the skin diseases called *kusṭha*, in keloid, ringworm, leucoderma, lepra, fistula-in-ano, tumours, unhealthy ulcers, sinuses, condyloma, moles, chloasma, brown spots on the face, warts, external inflammations, worms, poisons and piles, and in the seven following diseases of the mouth, namely, *upajihvá*, (ranula), *adhijihvá* tumour on the tongue, *upakuśa* (inflammation of the gum), *dantavaidarbha* inflammation of the gum from injury, and the three sorts of *rohiṇí* or inflammation of the throat. In these diseases of the mouth, accessory instruments, in the shape of caustics only, should be used. Alkaline solutions are administered internally in chronic or slow poisoning, abdominal tumours, ascites, loss of appetite, indigestion, disinclination for food, tympanitis, urinary deposits, calculi, internal or deep-seated inflammations, intestinal worms, poisoning and piles. Alkalies do not agree with children, old and weak people, and persons having a tendency to hœmorrhage from internal organs, or a bilious temperament. They are injurious in fever, giddiness, intoxication, fainting, amaurosis and such other diseases.

Alkalies for escharotic use are prepared like other alkalies by ining alkaline solutions as elsewhere explained in detail. They are made of three strengths, namely, weak, moderate and strong. He who wishes to prepare alkalies should in an auspicious day in autumn, fasting and in pure body, select a middle-aged, large-sized, uninjured *ghanṭápáṭali* tree with black flowers (*Schrebera swietenioides*) growing on an approved spot on a mountain, and address it with certain *mantras* or incantations as a preliminary ceremony called *adhivása*. Next day the tree should be cut or killed after reciting the following *mantra* or prayer: "Oh you with great fiery power may not thy strength be lost! Oh you auspicious tree, stay here and accomplish my work. After accomplishing my work you will go to heaven." Then the ceremony of *homa,* or burning the sacrificial fire, should be performed with one hundred white and one hundred red flowers. The tree should then be cut to pieces and piled in a place free from wind. Some limestone should be placed on the pile which should be set on fire by stalks of *Sesamum Indicum.* When the fire is extinguished, the ashes of the *ghanṭápáṭali* tree and the burnt lime should be kept separate. In the same way the following trees may be burnt with their root, branches, leaves and fruits for the preparation of alkalies, namely,—

Kuṭaja	Hollarrhena antidysenterica.
Paláśa	Butea frondosa.
Aśvakarṇa	Shorea robusta.
Páribhadraka	Erythrina Indica.
Vibhítaka	Terminalia Bellarica.
A'ragvadha	Cassia fistula.
Tilvaka	Symplocos racemosa.
A'rka	Calotropis gigantea.
Snuhi	Euphorbia neriifolia.
Apámárga	Achyranthes aspera.
Páṭalá	Stereospermum Suaveolens.
Naktamála	Pongamia glabra.
Vṛísha	Justicia Adhatoda.
Kadalí	Musa Sapientum.
Chitraka	Plumbago Zeylanica.
Pútíka	Guilandina Bonducella.
Indravṛiksha	Terminalia Arjuna.
A'sphota	Salvadora Persica.
Asvamáraka	Nerium odorum.
Saptachhada	Alstonia Scholaris.
Agni mantha	Premna Serratifolia.
Gunjá	Abrus precatorius.
Four sorts of Kośá	4 Varieties of Luffa amara.

Thirty-two seers of ashes should be stirred or mixed with six times their quantity of water or cow's urine and the mixture strained through cloth. This should be repeated twenty-one times. The strained fluid should then be boiled slowly in a large pan and agitated with a ladle. When the fluid becomes clear, pungent and soapy to the feel, it should be removed from the fire and strained through cloth. The filtrate being thrown away, the strained fluid should be again boiled. From this alkaline solution take three quarters of a seer. Then take eight palas each of Banduc nut, limestone, conch shells, and bivalve shells, and heat them in an iron pan till they are of the colour of fire. Then moisten them in the same vessel with the above-mentioned three quarters of a seer of alkaline water and reduce them to powder. This powder should be thrown on sixty-four seers of the alkaline water and boiled with constant and careful agitation by the ladle. Care should be taken that the solution is neither too thick nor thin. When reduced to proper consistence, the solution should be removed from the fire and poured into an iron jar. The opening or mouth of the jar should be covered, and it should be kept in a secluded place. This preparation is called *Madhyama kshára* or alkaline caustic of middling strength. When the alkaline water is simply boiled to proper consistence without the addition of burnt shells, &c., the preparation is called *Mṛidu kshára* or weak alkaline solution. The strong alkaline caustic is prepared by boiling the weak solution with two tolahs each in fine powder of such of the undermentioned ingredients as are available, namely,

Dantí,	Baliospermum montanum.
Dravantí,	Salvinia cucullata.
Chitraka,	Plumbago zeylanica.
Lángalikí,	Gloriosa superba.
Pútíka,	Guilandina bonducella.
Kanaka,	Salvinia cucullata.
Kshírí,	Cleome felina.
Vachá,	Acorus calamus.

Aconite root, carbonate of soda, assafœtida, black salt and corals.

This solution is used for bringing to a head or opening abscesses. These three varieties of alkalies should be used according to the state of the disease. In weak persons, the alkaline water without the addition of other caustic ingredients, should be applied to strengthen the parts. On this subject there are the following verses :

Good alkaline caustics should be neither too strong nor too weak. They should be white in colour, smooth and soapy to the touch, should not spread beyond where they are applied, and act rapidly and successfully. These are the eight good properties of caustics. Their bad qualities consist in their being too weak or cool, too strong or hot, too slippery and spreading, too thick or too under-boiled, or they may be deficient in ingredients.

In applying caustic to a patient suffering from a disease curable by this remedy, he should be made to sit in a spacious place, protected from wind and sun. The physician should then procure the instruments or necessary articles according to the rules laid down in the fifth chapter. He should then examine the diseased part, rub, scarify or scratch it, and then apply th caustic by means of a probe, and wait for the space of ti quired to utter one hundred words. The diseased part turns black on the application of the caustic which is a sign of its having been burnt. The application of some acid mixed with clarified butter or honey relieves the pain. If from the thickness of the burnt part, it does not fall off, the following application should be thoroughly applied to it, namely, equal parts of tamarind pulp, of the refuse of *kánjika* (fermented rice-water), sesamum seeds and liquorice root rubbed together into a paste. Sesamum seeds and liquorice root rubbed together with clarified butter promotes granulations in ulcers.

If you question how is it that the application of the pungent acid of *kánjika* relieves the burning of the fire-like hot alkaline caustic, then hear the following explanation from me. Alkalies possess all the tastes except that of the acid. The acrid taste prevails in it and the saline one to a less degree. The sharp saline taste when mixed with acid becomes very mild, and gives up its sharp quality. From this modification of the saline taste, the pain of caustics is relieved, just as fire is extinguished by water.

When the afflicted part is thoroughly burnt by the caustic application, the disease for which it was applied is relieved, the part becomes light and the discharge ceases. When the part is insufficiently burnt there is pain, itching, sense of weight and increase of the disease. When the part is over-burnt there is burning pain, suppuration, redness, increased discharge, pain in the limbs, sense of weariness, thirst, fainting and even death may result.

The sore caused by the application of alkaline caustics should be treated according to the nature of the disease and the deranged humour.

Caustics should not be applied to the weak, to menstruating and pregnant women and to children, old men and timid people, in general anasarca, ascites, internal hæmorrhages, in advanced stages of fever, urinary complaints, phthisis, ulceration of lungs, thirst, fainting, impotence and displacement upwards or downwards of the testicles and uterus. Caustics should not also be applied to the vital parts, veins, nerves, arteries, joints, soft cranial bones, sutures (cranial sutures, the perineal raphe and frænum linguæ) throat, navel, inside the nails, penis and the outer passages of the body, parts thinly covered with flesh, and to the eyes with the exception of the diseases of the eyelids. Alkaline caustics should not be applied even in diseases suited for their use, if the patient has swelling of his body (anasarca), pain in his heart, joints or bones, and disinclination for food. On this subject, there is the following verse:

Caustics if used by ignorant physicians cause death like poison, fire, thunder or sharp-edged weapons, but medicinally used by sensible physicians they cure in a short time many serious diseases.

CHAPTER XII.

On the mode of applying the actual cautery.

In surgical treatment the actual cautery is said to be superior to caustics, inasmuch as after the use of the cautery, the disease does not re-appear, and because it can remove diseases which cannot be cured by medicines, instruments or caustics. The following articles are required for the operation of applying the actual cautery, namely, wicks, the blunt instrument called *Jámbavaushṭha* and iron and some other metals, honey, treacle, clarified butter, oil, wax, &c. In cauterizing diseases of the skin, long pepper, goat's dung, orpiment, arrow point and wicks are used In diseases affecting the muscles, the instrument called *Jambavaushṭha* and the other metals besides iron are used. In diseases of the veins, nerves, joints and bones honey, treacle and oily substances are employed for the purpose of burning the parts.

The actual cautery may be used in all seasons, except autumn and summer, but if a rapidly fatal disease cannot be cured without the use of the cautery, then it may be employed even in these seasons, precautions being taken to remedy their evil influence by cooling, diet, regimen, &c. In all seasons and diseases, the patient should be fed with demulcent food before being subject to the operation, except in the cases of persons suffering from preternatural labour, stone in the bladder, fistula-in-ano, piles and diseases of the mouth. In these cases the patient should be cauterized on an empty stomach. Some say there are two sorts of cauterization, namely, burning of the skin and burning of the muscles. According to others there is no objection to cauterizing veins, nerves, joints and bones. When the skin is cauterized, the burning is attended with a crackling noise, and bad smell and contraction of the skin. When the flesh or muscles are cauterized, the burnt part assumes an ashy colour and is slightly swollen and painful, dry, shrivelled, contracted and ulcerated. When veins and nerves are cauterized the burnt part becomes black with an elevated eschar on it and bleeding is stopped. When the joints and bones are cauterized, the part becomes rough, red and dry and the sore caused by the burn is hard. In headache and ophthalmia, the temples, eyebrows and forehead should be cauterized. In diseases of the eyelids the eyeball should be protected by a piece of wet *alaktaka* (cotton coloured red with lac), and the roots of the eyelashes burnt. When a painful inflammation is caused by deranged air on the skin, flesh, veins, nerves, joints and bones, and the inflamed part is hard, swollen and insensible, the part should be cauterized. Cauterization should also be had recourse to in cystic tumours, piles, tumours, fistula-in-ano, enlarged lymphatic glands, elephantiasis, condyloma, moles, hernia, and wounds of joints and veins causing much hœmorrhage. Cauterization is performed in four different ways, namely, in circles, points, lines or in a continuous surface, according to the situation of the disease. On this subject, there is the following verse:

The physician should prescribe cauterization after carefully taking into consideration the symptoms and strength of the disease, the vital parts of the patient and the character of the season. After the part is thoroughly cauterized, honey and clarified butter should be applied to it, cauterization should not be performed on persons of bilious temperament, or the old, weak, young and timid, on those subject to hœmorrhages from the internal organs, to diarrhœa, or to numerous ulcerations on their persons, on those who have unextricated foreign substances in their persons, or on those who cannot be made to perspire.

I will now describe the symptoms of the other varieties of burning. Fire burns with the aid of dry or oily substances. Heated oil penetrating into the fine blood-vessels, the skin, &c., rapidly cauterizes. Hence in burning by hot oil, there is much pain. There are four grades of cauterization, namely, scorching, vesication, complete cauterization of the skin, and overburning. In scorching there is pain and discoloration. In overburning there is vesication with much burning, heat, pain, redness and suppuration, and the sore takes a long time to heal. In complete or the proper degree of cauterization the burn is not very deep, the part has the colour of the fruit called *tála* (*Borassus flabelliformis*), is neither too much raised or depressed and has the characters of burns as seen in the different structures above described. In excessive cauterization the burnt flesh hangs pendulously, the body becomes languid, the veins, nerves, joints and bones are injured, and much fever, burning of the body, thirst and fainting occur as complications. The ulcer does not heal soon and, even when healing, assumes an unhealthy character. These four sorts of burns should be treated in the manner suited to each. On this subject there are the following verses:

The blood of animals irritated by fire is greatly deranged. The deranged blood affects the bile. Fire and bile are both articles of the same class as regards their taste and strength. Hence burns from fire are naturally attended with much pain and burning, and there is vesication, fever and thirst.

Now the treatment of burns from cauterization is being described. In superficial burns or scorching, heat should be applie to the part and heating medicines and régimen used, for by copious perspiration the blood becomes thin. Cold water naturally thickens or dries up the blood, hence in superficial burns, hot applications, and not cold ones, give relief. In burns with vesication, both hot and cold applications should be used by the practitioner. In such cases butter should be applied, and cold water sprinkled on the part. In parts fully cauterized to the proper degree, bamboo manna, bark of *plaksha* (*Ficus infectoria*), red sandal-wood, red earth and *amṛita* (*Cocculus cordifolius*), equal parts rubbed into a paste with clarified butter, should be applied. The flesh of domestic animals, wild animals living in marshes and of water animals should be pounded and applied as a paste. In this sort of burn the treatment should be like that of deep-seated inflammation caused by deranged bile by the constant use of heating medicines. In cases of overburning all loosely hanging pieces of flesh should be removed, and a cooling treatment adopted. Afterwards a poultice made of powdered S'áli-rice (rice grown in the cold season) mixed with clarified butter, should be applied, or the bark of *tinduka* (*Diospyros embryopterus*) or other astringent barks may be powdered and applied in the same way. The sore should be covered by the leaf of the *Cocculus cordifolius* or that of some water-plant. The general treatment of erysipelas caused by deranged bile should be followed in these cases. The following ointment is useful in promoting granulations in all sorts of burns. Take of wax, honey, *lodhra* (bark of *Symplocos reacemosa*), resin, maddar, red sandal-wood, and *murvá* (*Sanseviera zeylanica*) equal parts, rub them together and boil in clarified butter. In burns by heated oils, a dry method of treatment should be followed.

I will now retail the symptoms of suffocation by smoke. They are difficulty of breathing, much sneezing, tympanites, cough, redness and burning of the eyes, exhaling out smoke from the lungs, not perceiving the smell or taste of anything except smoke, deafness, thirst, burning of the body, fever, langour, and fainting.

Such is suffocation by smoke. Now hear its treatment. The patient should be made to vomit by giving him clarified butter with the juice of sugarcane, or milk with raisins, or solution of sugar, or mild acids. By vomiting, the viscera are cleared, and the smell of smoke disappears. By this treatment, the langour, sneezing, fever, burning, fainting, thirst, flatulence, difficulty of breathing and cough are also alleviated. The use of sweet, saltish, acid and acrid gargles restores the functions of the special senses, and clears up the mind of the patient. Snuffs should be prescribed for the patient; they improve the sight and relieve the head and neck. The diet ordered should be light, easily digested and cooling.

In cases of burns from hot winds or exposure to the sun, a cooling treatment should always be adopted. Those suffering from exposure to cold, rain or wind are benefited by heating and emmollient treatment.

Burns by lightning are always fatal. In these cases, however, if the patient is living, he should be treated by the unctuous applications, washes and pastes above recommended for burns.

CHAPTER XIII.

ON THE APPLICATION ON LEECHES.

The subject of leeches is now being described. The application of leeches is a very mild way of extracting blood from the body, and is well adopted to kings, women, children, old, timid, weak, rich and delicate people. Blood deranged by wind, bile and phlegm should be extracted by horns, leeches and gourd respectively. Horns have unctuous, leeches cooling, and gourds drying properties. In diseases caused by the derangement of all the three humours, these three methods of abstracting blood may be practised. On this subject there are the following verses:

The horns of cows are said to be heating, sweet and unctuous; hence they are beneficial when employed in diseases caused by deranged air. Leeches live in cold places, are born in water and have sweet taste; hence extracting blood by leeches is beneficial in disease caused by deranged bile. Gourds are acrid, dry and pungent; hence extraction of blood by these, is useful in diseases caused by deranged phlegm.

In using the horn it should be covered with a piece of cloth and the blood sucked out by the mouth. The gourd should be applied with a burning wick placed inside it.

Now leeches are being described. They are called *jaláyuka*, because water is their life-sustaining element, and *jalaukasa* because they reside in the same element. There are twelve sorts of leeches of which six are poisonous and six without poison. The names of the six poisonous varieties are as follows: *Kṛishṇá*, *Karvurá*, *Alagardá*, *Indráyudhá*, *Sámudriká*, and *Gochaṇḍaná*. The variety of leeches called *Kṛishṇá* is black in colour and have thick heads, *Karvurás* have their bodies like that of eels with elevated stripes across their abdomen. *Alagardhás* have hairs on their bodies, large sides and black mouths. *Indráyudhás* have longitudinal lines along their back, of the colour of the rainbow. *Sámudrikás* are of a dark-yellow colour and have variegated spots on their bodies resembling flowers in appearance. *Gochaṇḍanás* have bifurcated tails like the two horns of a cow, and small heads. When these poisonous leeches bite any person, the bitten parts become swollen and very itchy, and fainting, fever, burning of the body, vomiting, mental derangement and langour occur. In these cases the medicine called *Mahágada*[1] should be administered internally, applied externally and used as snuff. The bite of the leech called *Indráyudhá* is fatal. Such is the description of the poisonous leeches, and their treatment.

Now the non-poisonous leeches. Their names are as follows: *Kapilá, Pingalá, Sankumukhí, Múshiká, Puṇḍaríkamukhí* and *Sávariká*. *Kapilá* have their sides of the colour of orpiment and their back smooth and of the colour of the pulse called *mudga* (*Phaseolus mungo)*. *Pingalás* have round bodies, move quickly, and are of slightly red or tawny colour. *Sánkhumukhís* are liver coloured, suck blood quickly, and have large sharp mouths. *Múshikás* have the colour and shape of rats and a bad smell. *Puṇḍaríkás* have mouths like the lotus and are of the colour of the pulse of *Phaseolus mungo*. *Sávarikás* have green colour like the leaf of the lotus, are unctuous, and eighteen fingers in length. They are used only for extracting blood from beasts. Such is the description of the non-poisonous leeches. The non-poisonous leeches are found in Turkey, *Páṇḍya* (the country to the south), *Sahya* (a mountain on the banks of the *Narbadá*) and *Pautana*, (the tract of country about Mathurá). Of non-poisonous leeches, those which are stronger and have large bodies, can drink blood rapidly and eat much, are especially free from poison.

Leeches which are produced in dirty water and from the decomposition of poisonous fishes, insects, frogs, urine and fœces are poisonous. Those produced in pure water and from the decomposition of the different varieties of the *Nelumbium speciosum* and of the *Nymphæa lotus* and of *Saivála* (*Blyxa octandra*) are non-poisonous. The varieties of *Nymphæa* and *Nelumbium* mentioned here are *padma, utpala, kumuda, nalina, kuvalaya, saugandhika* and *punḍarka.*

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[1] This will be described in the chapter on poisons.

On this subject there is the following verse:—Non-poisonous leeches go about in the fields and fragrant waters. They do not live in confined places or lie in mud as they seek comfort. These should be caught by means of wet leather or some other article. They should be kept in a new large earthen pot filled with mud and water from a tank. Mosses, dried flesh and powdered tubers of water plants should be given them for food. For bedding they should be furnished with grasses and leaves of water plants. Fresh water and food should be given every second or third day, and every seventh day the earthen pot should be changed. On this subject there is the following verse:

Leeches which are very thin or thick or with their central portions thick, which move slowly or do not stick to the part to which they are applied, which drink little blood, or which are poisonous are not fit for use. When about to apply leeches on a person who has got a disease curable by them, the patient should be made to sit or lie down. The affected part, if free from pain, should be rubbed with a little cow dung and earth. The leeches should then be taken hold off and smeared with a mixture of turmeric and mustard reduced to a paste with water. They should then be placed for a while in a cup of water till they are relieved of their weariness and afterwards applied to the diseased part. When being applied, their mouths should be left open and their bodies covered with fine white wet rags. If they do not bite, a drop of milk or blood should be applied to, or a small incision may be made on the diseased part. If even by these means a leech cannot be applied, it should be changed for another. A leech is known to have fixed itself to the part when it raises its shoulder and bends its head like a horse shoe. When fixed. it should be covered with a piece of wet cloth and a little water sprinkled on it occasionally. If the part bitten by a leech itches or is painful, it is a sign that the leech is drawing pure blood, and it should be removed from the part. If from fondness for blood it cannot be readily removed, a little rock salt should be sprinkled on its head. When a leech falls off after drinking blood, powdered rice should be applied to their bodies and oil and salt to their mouths, and they should be held by their tails with the index finger and thumb of the left hand. Then their bodies should be gradually rubbed or pressed from the tail towards their heads so as to make them vomit. This pressing should be continued till the leech has been quite emptied. When a leech is thoroughly emptied, it goes about in a cup of water in search of food. Those which have not been quite emptied of blood lie listlessly and do not make any exertion. These should therefore be again emptied. Leeches which do not vomit completely, are attacked with an incurable diseases called *indramada.* Leeches quite emptied of blood should be returned to the earthen pot from which they were taken. The leech-bites should be treated, after taking into consideration the quantity of blood coming out from them. If the quantity is small, the wounds should be rubbed over with honey and sprinkled with cold water. If the bleeding is copious, medicines with astringent and sweet tastes should be applied mixed with clarified butter in the form of cooling plasters and tied with a bandage. On this subject there is the following verse :

He who knows the fields where leeches are found, the mode of catching them, and their species or varieties, and the manner of feeding and applying them, can cure the diseases curable by leeches.

CHAPTER XIV.

DESCRIPTION OF THE BLOOD.

The four varieties of food derived from the five elements and having the six tastes, the two properties of heat and cold, or according to some, eight properties and many qualities when taken in moderation and thoroughly digested, produces a fine substance imbued with energy and fire. This is called *rasa* (chyle). The heart is the seat of the *rasa* or chyle. From the heart it proceeds through 24 arteries, namely, ten ascending, ten descending and four transverse to all parts of the body. By some unseen cause or destiny, this chyle continually satiates, increases, nourishes and supports the body and keeps it alive. The motion of this chyle throughout the body is inferred from the processes of decline, increase, and diseased condition of the different portions of the body. It may be asked whether this chyle which pervades all the external parts of the body, the three humours, the tissues, including the blood and the receptacles of the secretions, is endowed with the property of heat or of cold. As this chyle is a circulating fluid, and as it softens, vitalizes, supports and nourishes the body, it should be known to possess the cooling property. This watery fluid no doubt assumes a red colour in the liver and spleen, that is, it is converted into blood in these organs. On this subject there is the following verse :

The *rasa* (chyle) of living beings is coloured red by healthy bile. This coloured fluid is called blood. The blood excreted by women and called the menstrual fluid is derived also from this *rasa*. This menstruation, coming at the age of twelve, ceases at the age of fifty.

The menstrual fluid is endowed with the property of heat, owing to the womb being possessed of both the properties of heat and cold. Other writers say, that the blood of living beings is composed of the five elements. The five qualities of the five elements as seen in blood are as follows, namely, fleshy smell, liquidity, red colour, tendency to trickle or ooze, and lightness. Blood is produced from chyle, flesh from blood, fat from flesh, bones from fat, marrow from bones, and lastly the semen is produced from marrow. The chyle produced from food and drink nourishes these consistent parts of the body. Living beings are produced from this *rasa;* hence sensible people should carefully preserve this *rasa* by conforming to the proper rules of diet and regimen.

The root *ras* means "to go." *Rasa* is so named because it moves or circulates continually. This *rasa* stays in each of the above named essential parts for the space of three thousand and fifteen *kalás.*[1] In this way it is converted into semen, or in females into menses during the space of one month. On this subject there is the following verse:

The period in which this *rasa* completes its circuit, both in the form of *rasa* and of the other tissues, &c., is fixed at 18,090 *kalás.* This *rasa* pervades the entire system by a very fine process which is analogous to the diffusion of heat, sound and ater through material objects. Aphrodisiac medicines, by their n power and quality, act like purgatives and cause the rapid discharge of semen only, but they cannot hasten the secretion r maturation of semen from *rasa*, which, as above stated, requires a month. It cannot be said that the unexpanded flower-bud has fragrance in it, nor can it be said that it has no fragrance. It can only be acknowledged that the bud has fragrance, but from its fineness it cannot be perceived. In course of time the bud expands its petals and stamens, and the fragrance is distinctly perceived. In the same way the semen may be said to exist in boys, but is perfected after they attain the age of puberty, and as also the hairs on their body. In females also, menstruation commences at puberty, and along with it the breast, uterus and vagina gradually enlarge.

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[1] A *kalá* is about eight seconds.

The chyle derived from food does not prove nutritive to old persons on account of their bodies becoming decrepit from age. The seven *dhátus,* namely, chyle, blood, flesh, fat, bone, marrow and semen are so called because they support the system. Their increase and decrease depend upon the blood; hence I will now lecture on the subject of the blood.

Blood deranged by air is frothy, tawny, dark or variegated in colour, rough and thin. Such blood moves quickly and dries slowly. Blood deranged by bile is of blue, yellow, green or brown colour, with the smell of flesh. It dries slowly and is not affected by ants or flies. Blood deranged by phlegm has the colour of a solution of red earth in water, and is cool, thick, oily and slippery. It has the appearance of muscles and flows slowly. Blood deranged by all the three humours has a foul smell and the appearance of *kánjika* (fermented rice-water), as also the other symptoms of blood deranged by air, bile and phlegm respectively. If the blood is deranged of itself it has the black colour of blood deranged by bile. When the blood is affected by any two of the three humours at one time, it has the mixed characters of blood deranged by those two humours.

I will speak of the blood of living beings elsewhere.

Healthy or natural blood is not very thick, of the colour of the red insect called *indragopa* (cochineal), and does not present any form of discolouration. I will mention elsewhere the diseases in which blood-letting should be practised. I will here mention the cases in which blood should not be extracted. They are as follows, namely, general anasarca, debility, diseases caused by eating acids, anœmia, piles, consumption, pregnancy, ascites and other forms of swellings.

There are two modes of extracting blood by surgical operations, namely, by scarification and by opening a vein. In scarification the incisions should be straight, uniform, fine, neither very deep nor superficial. They should be made quickly, after observing the position of the vital parts, veins, nerves and joints. In cloudy or rainy days, when the air is very cold, when the perspiration is checked, or there is much perspiration, when the patient has not been fed, or when the operation is badly performed, little or no blood will come out. Here is a verse:

The blood does not flow freely in persons who are intoxicated or have fainted, who are much exhausted or are suffering from retention of urine, fœces or wind, who are sleeping or are timid. Impure blood thus retained in the system causes itching, swelling, redness, burning, suppuration and pain.

There is copious discharge of blood in very hot days, if the patient perspires much, or if the incisions are made very deep by an ignorant physician. From excessive flow of blood result heat of head, dimness of sight, amaurosis, wasting of tissues, convulsions, hemiplegia or paralysis of a single limb, thirst, burning of the body, hiccough, difficulty of breathing, cough, anœmia and even death. Here are some verses:

Hence the physician should extract blood in days which are neither very hot nor cold, and when the body is neither cold nor perspiring copiously. Before the operation the patient should be made to take some prepared barley. When the blood after free discharge ceases to flow of itself, the physician should know that the bleeding has been properly done and the blood purified. The effects of bleeding properly performed are lightness, relief of pain, cheerfulness of mind, and a check to the progress of the disease. Those who are in the habit of having their blood extracted periodically, never suffer from diseases of the skin, swellings of the joints and disorders of the blood.

When the blood does not flow freely, three or four of such of the undermentioned ingredients, as are available, or all of them should be reduced to powder, mixed with mustard oil and salt and made into a thick paste and rubbed on the scarified part, whereupon the blood will flow freely, namely, Cardamom camphor, soot, turmeric, ginger, long pepper, black pepper, root of *kushṭha* (*Saussurea auriculata*), root of *páṭhá* (*Stephania hernandifolia*), seed of *viḍanga* (*Embelia Ribes*), *arkánkura* (*Asclepias gigantea*), *naktamála* (*Pongamia glabra*), *tagarpáduká* (*Limanthenum cristatum*), *bhadra dáru* (*Cedrus deodara*), and *chitraka* (*Plumbago zeylanica*).

When there is a copious flow of blood, it should be checked by the powder of the following substances being applied to the bleeding part and pressed into the wound by the finger, *lodhra*, (*symplocas racemosa*), *madhuka* (liquorice), *priyangu* (*Aglaia Roxburghiana*), *pattanga* (*Caesalpinia sappan*), red earth, resin, extract of Indian barberry, conch-shell, bivalve-shell, *śálmalí pushpa*, (flowers of *Bombax Malabaricum*), barley, wheat, *másha* (*Phaseolus Roxburghii*), or a powder composed of resin, *arjuna*, (*Terminalia arjuna*), *arimeda* (*Acacia farnesiana*), *meshaśṛingí*, (*Gymnema sylvestre*), *dhava* (*Anogeissus latifolia*), *dhanvana* (*Grewia elastica*) and cinnamon may be applied to the bleeding part. Burnt silk, cloth, or cuttle fish and lac may also be used in the same manner, after which the wound should be lightly tied up with the plasters and bandages, &c., described in the treatment of ulcers. The patient should be covered with cool clothing, he should be kept in a cool room and given cooling food. The bleeding part should be treated with cooling washes and plasters, or the bleeding part may be burnt with caustics and fire, or the vein which is bleeding copiously may be divided.

A decoction of the medicines included under the class *Kákalyádi* should be given to the patient, or he should be made to take a mixture of sugar or honey. The blood of an antilope, deer, ram, hare, buffaloe, or boar should be given to the patient with oliaginous soup made of pulses, or with broth made of meat, or with milk. The complications should also be treated according to their nature. Here are some verses:

After bleeding the digestive power is weakened owing to loss of blood, and the air is much deranged. To relieve this, the patient should be carefully fed with light oleaginous, not very cooling and nutritious food. Acid food should not be allowed, or very slightly acid articles only sho uld be given.

There are four modes of arresting hœmorrhages, called respectively *sandhána* or contraction of the wound, *skanda* or drying of the blood, *páchana* or digestion, and *dahana* or burning. The application of astringent decoctions makes the wound to contract; cold or ice dries up or coagulates the blood; ashes digest or block up the part, and the actual cautery contracts the veins. If the blood is not dried by the application of cold or ice, astringents should be employed; if these fail, ashes should be used. The physician should try his best to stop bleeding by these three means according to the rules on the subject, but if he fails, he should resort to the actual cautery which alone is then beneficial. If after bleeding any impure blood still remains in the system, the disease will not increase much. In such cases the disordered blood should be remedied by medicine, but excessive bleeding should not be practised. The blood is the [illegible] of the system and the means of maintaining it; hence it should be very carefully preserved. In this way the vitality of [illegible]ing beings is secured. From the use of cold applications after bleeding, the air becomes deranged and causes a painful swelling in the part. This should be treated with the application of tepid clarified butter.

CHAPTER XV.

ON THE INCREASE AND DECREASE OF THE HUMOURS, ESSENTIAL PARTS, AND EXCRETIONS OF THE BODY.

The humours, the essential parts, and the excretions are the supports of the body. Hear, therefore, their characters, now being described by me. Air assumes five forms, or performs five sorts of functions, in supporting the body, namely, *praspandana* or imparting motion, *udvahana* or moving the fluids within the body, *púraṇa* filling the stomach or other viscera with food, &c., *viveka* or separating the chyle from the fœces, urine, &c., and *dháraṇa* or retaining the urine or fœces and expelling them when required.

Five sorts of bile perform the functions of fire or heat within the system, namely, *rágakṛit* or the form that gives red colour to the blood, &c., *paktikṛit* or that which digests food, *ojastejakṛit* or that which imparts energy to the system and fire and brilliancy to the eyes, *medhákṛit* or that which imparts the power of understanding, and *ushmakṛit* or the form of bile which produces the heat of the body.

Five sorts of phlegm perform the functions of water, namely, *sandhisaṃśleshaṇa* or the phlegm that lubricates the interior of joints, *snehana* or that which softens the body, *ropaṇa* or that which produces granulations in sores, *púraṇa* or that which gives fulness to the body, and *balasthairyyakṛit* or that which gives strength and firmness to the limbs.

Rasa or chyle causes a sense of satisfaction, or keeps the individual in good spirits, and nourishes the blood. The blood imparts colour to the body, nourishes the muscles and preserves life. The muscles nourish the fat and give plumpness or fulness to the body. Fat produces the oily or unctuous matter of the body and the perspiration; it nourishes the bones and imparts firmness to them. Bones support the system and nourish the marrow. The marrow fills the bones, nourishes the semen, and imparts strength, shining appearance, and loveliness to the body. The semen causes strength, endurance, sprightliness and inclination for sexual intercourse, and is the source of the offspring. The fœces maintain the air and fire of the body, and support the system. The urine fills the bladder and removes the impurities of the body. The perspiration is but the impurity or dirt of the skin; it imparts softness to the skin. The menstrual fluid has the properties of the blood and causes pregnancy. Pregnancy produces its proper symptoms. Milk causes fulness of the breast and is the support of life. These humours should be duly and carefully preserved.

I will now describe the symptoms produced by the decrease of these humours, &c. Their decrease is brought about by the abuse of alterative and depurative medicines, by restraining the natural inclinations to pass urine or fœces, by the use of unwholesome food, by mental anxiety, excessive exercise, fasting and excessive venery.

When the air is decreased, there is inaptitude for exertion and inability to speak much, want of cheerfulness and dullness of the mind. In decrease of bile there is loss of heat in the body, decrease of digestive power, and want of shining or gloss in the skin. In decrease of phlegm there is roughness of the surface, [illegible]ning sensation in the interior of the body, feeling of empti[illegible] in the head, stomach, intestines, &c., relaxation of the joints, [illegible]t, debility and sleeplessness. In decrease of these humours [illegible] diet and regimen should be prescribed as increase them in [illegible]e healthy state of the body.

In decrease of *rasa* or chyle, there is thirst, palpitation and pain, and a sense of emptiness in the heart. In decrease of blood, there is roughness of the skin, desire for acid and cooling things, and relaxation of the veins. In decrease of muscle, the buttocks, cheeks, lips, genitals, thighs, breasts, sides of the chest, calves, abdomen and neck are emaciated, there is roughness and pain of the body, and depression and relaxation of the arteries. In decrease of fat the spleen enlarges, the joints feel empty, there is roughness of the body and a desire for fat meat. In decrease of bone there is pain in the bones, fracture of the teeth and nails, and roughness of the body. In decrease of marrow there is diminution of semen, pain in the joints and bones, and a sense of emptiness in the bones. In decrease of semen, there is pain in sorts of functions, in supporting the body, namely, *praspandana* or imparting motion, *udvahana* or moving the fluids within the body, *púraṇa* filling the stomach or other viscera with food, &c., *viveka* or separating the chyle from the fœces, urine, &c., and *dháraṇa* or retaining the urine or fœces and expelling them when required.

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In decrease of *rasa* or chyle, there is thirst, palpitation and pain, and a sense of emptiness in the heart. In decrease of blood, there is roughness of the skin, desire for acid and cooling things, and relaxation of the veins. In decrease of muscle, the buttocks, cheeks, lips, genitals, thighs, breasts, sides of the chest, calves, abdomen and neck are emaciated, there is roughness and pain of the body, and depression and relaxation of the arteries. In decrease of fat the spleen enlarges, the joints feel empty, there is roughness of the body and a desire for fat meat. In decrease of bone there is pain in the bones, fracture of the teeth and nails, and roughness of the body. In decrease of marrow there is diminution of semen, pain in the joints and bones, and a sense of emptiness in the bones. In decrease of semen, there is pain in the penis and testicles, and impotence or delay in the emission of semen. The semen discharged is mixed with a little blood. The treatment of these disorders consist in administering articles which increase these *dhátus* or essential parts of the body. In decrease of fœces, there is pain in the heart and the sides, wind passes upwards with noise and moves about within the abdomen. In decrease of urine, there is pain in the bladder and scanty urine. In these disorders also such articles should be given as increase the fœces and urine. In decrease of perspiration, the skin is dry and does not perspire, its pores are closed, and its sensibility is impaired. Application of heat and oil to the skin remedies this condition. In decrease of menstrual blood, the menses do not appear at the proper time or are scanty, and there is pain in the genitals. Alteratives and heating medicines should be given according to rules. In decrease of milk the breasts are reduced in size and secrete less milk. To remedy this, such articles as increase phlegm should be given. In decrease of the fœtus, the abdom does not enlarge and quickening is not experienced. For after the eighth month of pregnancy, injections of milk sh be thrown into the vagina and oleaginous articles of food ministered.

I will now describe the symptoms produced by increase of the humours, the essential parts, and the excretions. Their increase in caused by the use of such regimen and articles of diet as have a natural tendency to do so. When air is increased, the skin becomes harsh and dark coloured, there is emaciation, twitchings of the muscles, a desire for heating articles, loss of sleep, debility and hardness of the fœces. In increase of bile, there is yellow discolouration of the skin, heat of body, desire for cooling things, little sleep, fainting, debility, impairment of the senses, and yellow-coloured urine, fœces and tears. When phlegm is increased, the body becomes pale, there is a feeling of coldness, dullness, weight and lassitude, drowsiness, much sleep and distention of the joints.

When the *rasa* or chyle is much increased, there is nausea and watering of the mouth. When blood is increased, the body and eyes become red in colour and the veins full. When the muscles are increased, there is increase in the size of the buttocks, cheeks, lips, genitals, thighs, arms and legs, and heaviness of the body. When the fat is increased, there is increase in the size of the abdomen and sides, cough, difficulty of breathing, &c, the skin is unctuous and emits a bad smell. When bone is increased, the bones are hypertrophied, and additional or extra teeth are developed. When the marrow is increased, there is a sense of weight in the entire body as also in the eyes. When the semen is increased, calculi formed of semen are produced in the bladder, and there is excessive discharge of this secretion. In increase of fœces there is pain in the abdomen and borborygma. When the urine is much increased, there is frequent micturition, pain in the pelvis and distension of the abdomen. In increase of perspiration there is bad smell and itching of the skin. In increase of menses there is pain in the body and limbs, excessive menstruation and debility. When the milk is increased, the breasts enlarge and become painful, and there is frequent discharge of milk from them. When the fœtus increases much, the womb is enlarged and there is anasarca. Increase of the *dhátus* and excretions should be treated by such alteratives and depuratives as respectively affect them and cause their decrease. When a *dhátu* is increased, the next *dhátu* which is nourished by it is also increased, hence all the *dhátus* that are increased should be reduced.

I will now describe *oja* (the principle of vital power of the body) and the symptoms of its decrease. The essence of all the seven *dhátus*, from *rasa* to *śukra*, is called *oja*. In this *śástra*, *oja* should be understood to be synonymous with *bala* or the vital power. From this *bala* results firmness of the muscles, inclination for all sorts of exertion, clearness of complexion and voice, and the due performance of the functions of all the organs of the body whether internal or external. This *oja* is of lunar origin, is cooling, white, oily, soft, diffusible, fragrant and the seat of vitality. It exists in the body unseen and gives firmness to it. It is diffused through all parts of the bodies of living beings. The body wastes from its want. Injuries, wasting diseases, anger, grief, anxiety, excessive toil, and insufficient food, or diminution of any of the *dhátus* causes loss of *oja*. Loss of *oja* causes loss of strength and feeling.

I will now describe the symptoms caused by deterioration, decrease and derangement of *oja*. In decay of *oja* there occurs relaxation of the joints, lassitude, derangement of the humours, and defective performance of the functions of the body.

In derangement of *oja* there are stillness and heaviness of the body, langour, swellings caused by air, change of complexion, drowsiness and disposition to sleep. In decrease of *oja* there occur fainting fits, insensibility, wasting of muscles, delirium and even death. On this subject there are the following verses:

There are three disorders of *bala*, namely, derangement, deterioration and decrease. In deterioration of *bala* there are a sense of weariness, relaxation and langour of the body, derangement of the humours and deficient performance of the functions of the body. In derangement of *bala* there is heaviness and stiffness of the limbs, lassitude, pain and discolouration of the body, drowsiness, sleep and swellings caused by air. In decrease of *bala* there occur fainting fits, wasting of muscles, insensibility, delirium and loss of reason. The symptoms described as occurring from derangement and deterioration of *bala* also occur and even death may result. In derangement and deterioration of *bala* endeavours should be made to restore *bala* by such treatment as may not be injurious in other respects. When a patient has lost his consciousness and has got the other symptoms of decay of *bala*, his case should be given up as hopeless.

Teja has also the heating quality. In all the *dhátus* there is an oily substance which exudes during their maturation, and forms the *dhátu* called *vasá* (marrow of flesh). This especially occurs in large quantity in women. From this *vasá* results the delicacy, softness, beauty, and splendour of their bodies and the short and peculiar character of the hairs of their bodies. It produces energy, sight and digestive power, and it maintains the body. It is deteriorated by the use of astringent, bitter, cooling, dry and constipating articles, by restraining the natural inclinations to pass the excretions, by excessive venery or exercise, and by emaciation engendered by disease. From its deterioration result harshness of the skin, change of complexion, loss of radiance, and pain in the body. When this *vasá dhátu* is deranged, the body emaciates, the digestive power fails, and thereis discharge from the lower and lateral outlets of the body. In decrease of this *dhátu* there occurs loss of digestive power, strength and sight, diseases caused by derangement of air and even death. In disorders of this *dhátu* oleaginous substances should be given internally, rubbed on the body, sprinkled on it, or applied as plasters. The diet should be light and cooling. When any of the humours, *dhátus* or excretions become deficient or deranged, the patient, weakened by such loss, expresses a desire for those articles of food and drink which have the power of increasing the particular humour that is weakened. If the patient gets the articles of diet which he wishes to take, then his loss is made up, that is, he is restored to health. When the air destroys the sensibility and functions of the organs of sense of a person suffering from loss of *dhátu*, and when he becomes very weak, he cannot be cured by treatment.

Obesity and spare-make depend upon *rasa* or chyle. The food is imperfectly digested and turned into sweetish chyle by the use of such articles of food as increase phlegm, by excessive eating, want of exercise and sleeping during the day. This imperfectly formed chyle circulates throughout the body and produces much oily material. From this oily material fat is produced, and from excessive fat obesity results. From corpulence, persons suffer from dyspnœa on exertion, thirst, increased appetite, sleep and excessive perspiration, fœtor of body, snoring, lassitude and indistinct speech. Too much fat renders the body delicate and unfit for work. Too much fat in the body causes impotence by blocking or filling up the passages in the body by phlegm and fat. In this way also results deterioration of the three next *dhátus*, namely, bones, marrow and semen. Very corpulent persons are shortlived and suffer from urinary disorders, eruptions on the skin, fever, fistula-in-ano and deep-seated abscesses, and the diseases caused by deranged air from one of which death results. All diseases assume a severe form in such persons owing to the internal passages being obstructed by fat, hence the causes which produce obesity should be avoided.

In obesity the following medicines, &c. should be used according to rules, namely, *śilájatu* (a bituminous substance), *guggulu* (bdelium), cow's urine, the three myrobalons iron powder, *rasájánjana* (extract of Indian Bearberry), honey, barley, *mudga* (*Phaseolus mungo*), *koradúshaka* (*Paspalum scrobiculatum*), and *śyámá* (*Panicum frumentaceum*), enemata, exercise, and such other medicines, as reduce fat and clear the passages or vessels of the body and thin the tissues, should also be employed.

The following causes produce emaciation, namely, use of such articles of food as tend to increase air, excessive exercise, walking, travelling, or venery, fear, grief, anxiety, want of sleep, thirst, not eating at proper times, or eating astringent articles, insufficient food, &c. From these causes the chyle is dried up, and from its smallness cannot permeate through all the structures of the body, hence the latter emaciates. Very thin persons suffer from hunger and thirst, and cannot bear heat, cold or rain or exert much, and are very liable to the diseases caused by deranged air. One of the following diseases, namely, asthma, cough, consumption, spleen, ascites, dyspepsia, abdominal tumours or hœmorrhage attack such persons and destroy them. All diseases are apt to become serious in them, owing to their low vitality, hence the causes which produce emaciation should be avoided.

When the body is emaciated the following medicines should be administered, namely, *kshíra kákolí* (a medicine not now available) *aśvagandhá* (*Withania somnifera*), *vidárí* (*Batatas paniculata*), *vidárígandhá* (*Desmodium gangeticum*), *śatávarí* (*Asparagus racemosus*), *balá, atibalá* and *nágabalá* (varieties of *Sida cordifolia)*, or other medicines of the sweet class. For diet, milk, curds, clarified butter, meat, and rice grown in the cold and rainy seasons, barley, wheat, &c. should be given. The patient should sleep during the day, refrain from sexual intercourse, take no exercise, and use strengthening enemata. The individual who uses a mixed sort of diet containing both oily and dry substances, has his *dhátus* or tissues equally nourished by the chyle reaching them all. From equal nourishment of all the tissues the body becomes strong, remains of moderate size, is capable of doing all sorts of work and of bearing hunger, thirst, cold, heat, rain, sun, &c Hence it is desirable always to maintain the body in this medium state.

On this subject there are the following verses:

Both corpulence and leanness are bad, a medium condition being the best. Of the two, namely, corpulence and leanness, the latter is preferable. The humours, when deranged, waste the tissues by their own power, just as a lighted fire dries the water in a pot, placed over it. Owing to the various conformation of the bodies of different individuals and the varying properties of the humours according to the seasons, time of day, &c., it is not practicable to state precisely the quantity of the humours, *dhátus* and excretions existing in any person. The state of equilibrium of these humours is inferred by physicians when a person is in good health. By no other means can this be ascertained. The intelligent physician infers that these humours, &c. are deranged, or are not in proper equilibrium, when he notices that the senses of the patient are dull. When the humours, the digestive fire, the *dhátus* and excretions perform their functions in a proper manner, and the senses and mind are clear, the condition of the body is said to be the state of health. Health should be preserved. When the health is deranged, the humours, *dhátus*, and excretions should be increased or decreased, till the diseased person is free from illness.

CHAPTER XVI.

ON THE OPERATIONS OF PERFORATING THE LOBULE OF THE EAR AND REPAIRING THE TORN OR INJURED EAR.

The lobules of the ears should be perforated for the purpose of wearing protecting ornaments, when the infant attains the age of six or seven months. The ceremony should be performed in an auspicious day and moment of the *śukla paksha* or light-half of the month, after the due performance of the necessary religious ceremonies. The infant should be placed on the la of the nurse, and its attention diverted by some attractive play thing. The physician should then hold the ear by his left han and find the most suitable spot for perforation by noticing th point which is thinnest or which transmits the rays of the su best. The lobule should be slowly perforated in a straigh direction. Thin ears should be perforated by a needle and thic ones by the instrument called *árá*.* The right ears of male and the left ones of females should be first perforated. A ten of cotton should be introduced into the opening, and it should b kept moist with fresh or unboiled oil. If the proper place perforated then there is no ill consequence. Bleeding or muc pain indicates that the operation has not been performed in th suitable spot. If the vein of the ear is wounded by an ignora or careless physician, the following diseases occur, namely, *kálik*

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* This instrument is said to be like a shoemaker's awl.

marmariká and *lohitiká*. In *káliká* there is fever, burning of body, pain and swelling. In *marmariká* there is pain, fever and enlargement of glands. In *lohitiká* there is stiffness of the neck, pain on the head and ear and tetanus or rigid spasm. These diseases should be treated according to their symptoms. If the needle used in perforating be a bent or improper one, or the tent, introduced into the opening, be a very thick one, or if the operation be not performed in the proper spot, or the humours are deranged there occurs pain and swelling. In such cases, the lint should be drawn out and a paste made of liquorice, root of castor-oil plant, madder, barley and sesamum seeds with clarified butter, and honey should be thickly applied to the part till the wound heals. When the wound is healed, the operation should be again performed according to the rules above described. Every third day the tent should be taken out and a new one thicker than the old, should be introduced and oil applied. When the wound is heated and free from all complications, the lobule should be enlarged by the gentler means used for this process. On this subject there is the following verse:

"During the process of enlarging the ear, the latter is liable to be divided into two, or this division may result from the derangement of the humours or from some injury. Now hear from me the method of uniting the divided ear.

There are fifteen varieties of reparative operations for injured ears. Of these fifteen the first ten are forms of operation for particular forms of injuries, and the last five are incurable injuries. They are included in the enumeration to form a class. They are named as follows: *nemi sandhánaka, utpala bhedyaka, vallúraka, ásangima, gaṇḍakarṇa, áháryya, nirvedhima, vyáyojima, kapáṭa sandhika, ardhákapáṭa sandhika, saṃkshipta, hínakarṇa, vallíkarṇa, yashṭikarṇa* and *kákaushṭhaka*.

When the two portions of the divided lobule are equal, large and broad, the form of operation called *nemi sandhánaka* (resembling the circumference of a wheel) should be performed. When the two portions are equal, rounded and broad, the form of union called *utpala bhedyaka* (like the shoot of a lotus) should be adopted. When the two portions are short, rounded and equal, the form of union called *vallúraka* (a twining plant) should be made. When the inner portion is large and the outer non-existent, the form of union called *ásangína* (attachment to outer part of ear) should be adapted. When the outer portion of the lobule is large and the inner non-existent, the form of operation called *gaṇḍakarṇa* (taking a piece of skin from the cheek and turning it back to the ear) should be performed. When there is no lobule from loss of both the outer and inner portions, the form of operation called *áharyya* (that is, bringing together two pieces of skin from the front and back of the ear and making a lobule of them) should be performed. When the two portions are wanting, from having been torn from their base, then the form of operation called *nirvedhima* (or puncturing the concha) should be performed. When one portion is thin and the other thick, or one even and the other uneven, then they should be united by the operation called *vyáyojima* (various incisions as required). When the inner portion is large and the outer small, they should be united by the form of union called *kapáṭa sandhika* (joining of a door). When the outer portion is large and the other small, they should be united by the process called *ardha kapáṭa sandhika* (half joining of a door). These ten forms of torn ears are curable by the operations mentioned for them. The forms of union resemble the articles from which the operations are named.

The remaining five forms of deformities out of the fifteen mentioned above are incurable. When the pinna or auricle is atrophied, and the lobule is either quite gone or a small part of it remains, the disease is called *sam̱kshipta*. When the place of the lobule is not discernable, and the portion of the ear which joins the cheek is narrow or wanting in flesh, the disease is called *hínakarṇa*. When the lobule is thin, unequal and small, it is called *vallíkarṇa*. When the flesh of the ear is hardened and has many veins in it and the lobule is atrophied or very small, the disease is called *yashṭikarṇa*. When the lobule is without flesh and with little blood and its end is pointed, it is called *kákausṭhapáli* or lobule like the crow's beak. These five forms, even if operated upon, do not get well from the supervention of swelling, heat, redness, suppuration, eruptions and discharge. On this subject there are the following verses :

If a person has not got any part of the two portions of his lobule, his concha should be perforated and the opening gradually enlarged. If the outer portion of the lobule is large, the place of union should be internal. If only one portion of the lobule is left, and it is thick, large and firm, it should be cut into two, dissected, and joined to the part above it. If the lobule is entirely wanting, a piece of skin should be dissected from the cheek, and a lobule made with the flap of living skin, thus turned back, but still connected with the cheek.

Before performing any of the operations on the ear above described, all the articles, necessary for surgical operations and described in the chapter on the subject, should be procured. The following special articles should also be at hand, namely, *Surámanḍa* (a sort of wine), milk, water, *kánjika* (or fermented rice water), and a piece of broken earthen-pot. The female or male to be operated upon, should have the end of his or her hair tied, should take a light meal, and should be held firmly by friends. The physician, after deciding upon the form of operation to be performed, should cut, puncture or incise the parts as required, and then observe whether the blood discharged during the operation is healthy or deranged. If the blood is deranged by air, the part should be washed with hot water and fermented rice water, if by bile, with cold water and milk, and if by phlegm, with wine and hot water. The parts should then be again scarified, and while still bleeding they should be brought together evenly and without any irregularity. They should then be smeared with clarified butter and honey and covered with cotton and a piece of cloth, tied round with thread neither very tightly nor very loosely. A bit of broken earthen-pot should be powdered and sprinkled on the dressing. The physician should then give

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directions about food, drink, &c., and treat the patient according to the rules laid down in the chapter on the treatment of wounds. On this subject there are the following verses :

Friction or rubbing the part, sleeping during the day, exercise, excessive eating, venery, heat of fire, and too much talking should be avoided. For three nights unboiled oil should be applied to the part. After three days the dressings should be removed by being moistened with oil.

During the operation the parts should not be brought together, when there is impure blood, too much blood or no blood on the divided parts ; for if blood deranged by air remains on the part, there will be a swelling in it even after union has taken place. If there is blood deranged by bile, it will cause heat, redness, suppuration and pain. From the presence of blood deranged by phlegm the united part itches much. From too much blood results swelling and a dark discolouration. If there is too little blood exuded at the time of operation, then but little flesh f[illegible]ns in the part, and it does not enlarge. When the operated pa[illegible] firmly united, free from complications and of natural cold, then it should be slowly enlarged ; otherwise inflammation, hea suppuration, redness, pain, or even separation of the parts ma result. The following oil is used for the purpose of enlarging the lobule, after it is healed and is free from complication. Tak of the fat and marrow of the following animals, namely, *godha* (guana), falcon or other carnivorous birds, or of animals living in marshes and in water, cow's milk, and oil made of white mustard-seed as far as available, and boil them with the following ingredients, namely :—

arka,	(*Asclepias gigantea*),
alarka,	(*Erythrina Indica*),
balá and *atibalá,*	(two varieties of *Sida cordifolia*),
ananta,	(*Hemidesmus Indicus*),
apámárga,	(*Achyranthes aspera*),
aśva gandhá,	(*Withania somnifera*),
vidárí gandhá,	(*Desmodium gangeticum*),

kshíra vidárí,	(*Batatas paniculata*),
jala śúka,	*Blyxa octandra*

and the drugs included in the class called *madhura varga.* This oil should be kept in a secret place.

The ear should be rubbed and fomented, and the above oil applied, when it will gain in strength and size without any evil effects. A paste made of barley *aśvagandhá* (*Withania somnifera*), liquorice root, and sesamun seeds, and applied to the ears is useful. An oil prepared with milk and the following articles is also useful for enlarging the lobule of the ear:

śatávarí,	(*Asparagus racemosus*),
aśvagandhá	(*Withania somnifera*),
erenḍa múla,	(root of castor oil plant),
payasyá	(*Gynandropsis pentaphylla*),

and the medicines included in the class called *jívaníyagana.*

When the ear after proper operation and union does not increase, a right incision should be made at the junction of the lobule with the cheek called (*apánga*). No incision should be made on its outer part, for there is certain danger in this. If an attempt is made to increase the lobule immediately after its union, the new granulations swell and soon give way. When hairs grow on the part, when the hole in the lobule is well formed, the union is firm and even, and the lobule itself firm and free from pain, then it should be increased gradually. The methods of uniting divided lobules are numerous. That form of operation should be adopted by the physician which best suits the particular case.

Oh Suśruta, I am now describing the diseases which affect the lobule of the ear in men. Air, bile and phlegm being deranged in the lobule singly, or two of them at a time, or all three together, produce various diseases. Deranged air causes boils, insensibility and swelling. Deranged bile causes burning, boils, swelling and suppuration. Deranged phlegm causes itching, swelling, sense of weight and coldness. Treatment should be directed to rectifying the deranged humours by fomentation, rubbing and sprinkling of oils, plasters, blood letting, tonics, and suitable diet. The physician who understands these gentle methods of treatment can undertake the treatment of the deranged humours in the ear.

I will now give the names of the complications which affect the lobule of the ear. Their symptoms will be understood from their names *utpáṭaka*, (feeling of distension or bursting), *utpuṭaka* (sensation of formication), *syáva* (black discolouration), *kaṇḍujuta* (attended with much itching), *avamantha* (painful pustules), *sakuṇḍuka* (itching eruptions), *granthika* (tubercles), *jambula* (tumours like the fruit of *Eugenea Jambolana*), *srávi* (inflammation with discharge), and *dáha* (burning sensation). Listen to the description of the treatment of these diseases. In *utpáṭaka* a plaster made of *apámárga* (*Achyranthes aspera*), resin, *páṭalá* (*stereospermun suaveolens*), and *lakucha* (*Artocarpus Lakoocha*) should be applied, or an oil made of these drugs should be used. In *utpuṭaka* a plaster made of the barks of [illegible]-*páka* (*Cassia fistula*), *śigru* (*Moringa pterygosperma*), *pú*[illegible]*á* (*Guilandina Bonducella*), the fat of guana, the bile of t wild bear, cow and deer, and clarified butter. Or an oil ca be prepared with these drugs. In *syáva* a plaster made o the following drugs should be applied, namely, *gaurí* (*Vanda Roxburghii*), *sugandhá* (*Ichnocarpus frutescens*), *syámá* (*turmeric*)*;* *anantá* (*Hemidesmus Indicus*), *taṇḍulíyaka* (*Amaranthus polygamus*)*;* or an oil may be prepared with these drugs. In *sakuṇḍaka* a plaster or an oil made of the following drugs should be used, namely, *páṭhá* (*Stephania hernandifolia*), *rasánjan* (extract of Indian Barberry), honey and hot fermented rice-water. When there is ulceration, an oil prepared with the following drugs should be used by the knowing physician, namely, liquorice, *kshírakákolí* (a drug not now available), and the medicines included under the class *jívakádigana*. The fa of the guana, wild boar and snakes should be added to the above if the oil is used for strengthening the parts.

In *avamanthaka* a plaster made of the following articles should be used, namely, *prapauṇḍarika* (root stock of *Nymphæa lotus*), *samangá* (*mimosa pudica*), *dhava* (*Anogeissus latifolia*), and liquorice root. In *kaṇḍumata* an oil or plaster prepared with the following should be used, namely, *sahadevá* and *viśvadevá* (two varieties of *Sida cordifolia*), goat's milk and rock-salt. In *granthika* the tubercles should first be scarified to let out blood, and then rubbed over with powdered rock-salt. In *jambula* the tumour should be scarified and rubbed over with the powdered bark of *Symplocos racemosa* (*lodhra*) and afterwards washed with milk, when it will be purified and granulations will arise. In *sráví* an oil or plaster made of *gulancha* (*Cocculus cordifolius*), flowers of *Bassia latifolia,* liquorice root and honey should be used. In *dáha* a plaster made of the five barks included under the class *panchavalka,* with honey and clarified butter, should be used, or a plaster should be made of the medicines included in the class *jívakádi,* with clarified butter, and applied to the part.

I will now describe the method of repairing noses which have been cut. The portion of the nose to be covered should be first measured with a leaf. A piece of skin of the required size should then be dissected from the cheek, and turned back to cover the nose. The part of the nose to which this skin is to be attached or joined, should be made raw, and the physician should join the two parts quickly but evenly and calmly, and keep the skin properly elevated by inserting two tubes in the position of the nostrils, so that the new nose may look comely. When the skin has been properly adjusted a powder composed of liquorice, red sandal wood, and extract of Indian barberry should be sprinkled on the part. It should then be covered with cotton, and white sesamum oil should be constantly applied to it. The patient should take some clarified butter, and when the butter is digested and the patient cooled, he should be purged according to rule. When the skin has united and granulated, if the nose is too short or too long, the middle of the flap should be divided and an endeavour made to enlarge or shorten it.

When the lips are cut or removed, reparative operations should be performed in the same way as for cut noses, only there is no necessity to use tubes under the skin here as in the nose. He who knows these operations is fit for treating kings.

CHAPTER XVII.

On the characters of impending suppuration and of completed suppuration.

S'opha or inflammatory swellings are for the most part caused by deep-seated inflammations, cystic tumours and other diseases. They are of various shapes and forms, extended or contracted, even or uneven, seated on the skin or affecting the flesh, &c. A swelling on a particular part of the body, with the humours deranged in it, is called *S'opha*. There are six varieties of inflammation, namely, four caused by deranged bile, air, phlegm and blood respectively, one from derangement of all the humours, and the last is caused by accidents.

I will now describe the symptoms of these different sorts of inflammation. Inflammation caused by deranged air is either red or black in colour, rough and soft. The sharp shooting pains which attend this form are not persistent.

Inflammatory swellings caused by deranged bile are yellow, soft and full of blood. They rapidly extend and are attended with burning and other pains. Swellings caused by deranged phlegm are white or yellowish-white, hard and cold. They progress slowly and are attended with itching and other sorts of pain. Swellings caused by derangement of the three humours are of all colours and attended with all sorts of pain. The symptoms of the variety caused by deranged blood are like those of the bilious form and its colour is very red. Inflammation caused by accidents have the symptoms of those produced by deranged blood and bile and have the colour of blood.

These swellings, when not relieved by external and internal treatment, suppurate from the derangement of the humours being aggravated by adverse treatment or being naturally great.

I will now describe the symptoms of inflammation without suppuration, of that commencing to suppurate, and of that which is quite ripe. Please listen, unripe swellings are cold and firm, they have little heat and pain, their colour is like that of the skin.

When an inflamed part commences to ripen, there is pain in it like the pricking of needles, or the biting of ants, or as if ants were moving about in it, or as if the part was being cut by instruments, or pierced by darts, or struck by a stick, or rubbed by the hand or fingers. There is a hot burning pain as if the part was being burnt by fire or caustics, or bitten by a scorpion. There is no rest in the standing, sitting or recumbent posture. The swelling increases like a distended bladder. There is discolouration of the skin, fever, burning of the body, thirst, and loss of appetite.

When the maturation of the swelling is completed, there is relief of pain, yellowish white colour of the skin, and decrease of swelling. The skin is depressed, corrugated and pits on pressure, and the cuticle desquamates. When pressure is made on one side of the swelling and a finger applied to the other side, there is a sensation as if water was moving within a bladder. There are frequent sharp shooting pains, itching and decrease of swelling. The complications which occur in the second stage are relieved and there is inclination for food.

Owing to the deep-seated nature of the abscesses caused by deranged phlegm and by injuries, the physician may mistake a ripe abscess for an unripe one, from all the symptoms of matuation not being developed. In these cases the normal colour f the skin, coldness, stoney hardness and uncircumscribed character of the swelling, and the small amount of pain should not mislead, that is, these characters should not lead one to suppose that the abscess has not suppurated. On this subject there is the following verse :

He who can diagnose unripe, ripening and ripe swellings is the true physician. The rest are cheats.

Without air there is no pain, without bile no suppuration, and without phlegm no pus. Hence all the three humours are concerned in ripening an abscess at the time of its maturation. Some say that formation of pus is effected by the bile in course of time attaining increased power, forcibly subduing the influence of the air and phlegm, and turning the blood into pus.

If an abscess is opened while yet unripe, there is great danger to the flesh, veins, nerves, bones and joints, profuse discharge of blood, much pain, tearing of parts and other complications, or it may be that the form of disease called *kshata vidradhi* (or deep-seated abscess resulting from wound) results. If the physician through error or fear mistakes a ripe swelling for an unripe &c., and long neglects to open it, then the deep-seated pus for want of an outlet penetrates through its walls and makes a large opening for itself. A sinus is formed and the disease becomes incurable or difficult to cure. On this subject there are the following verses :

The physician who opens an unripe abscess, as also he who neglects to open a ripe one, should both be regarded as *S'vapachas* (or men of degraded caste).

It is desirable that the patient should be fed before being operated upon. Those who are accustomed to drink and those who cannot bear pain should be made to drink some strong wine. The patient who has been fed does not faint, and he who is intoxicated does not feel the pain of the operation. Hence the patient ought always to be fed before surgical operations are performed, in diseases requiring them; for the internal vital power of man supports the body made of the five elements by assimilating to itself the properties of external vital power derived from nutrition or food.

An inflammation, whether limited or large which suppurates without external applications, becomes extended, is not uniform in character and which has a dark colour, is caused by deeply deranged humours and is cured with difficulty. If an inflammation does not subside under the proper use of plasters, blood-letting and corrective medicines, still it suppurates soon and uniformly, has a small base and rises high like a ball. As fire, when driven by air, rapidly burns a forest, so pent up or undischarged pus destroys the flesh, veins and nerves. The following is the course of treatment for inflammations. At first endeavours should be made to remove the swelling by rubbing with the fingers; secondly, blood should be drawn from the part by leeches, &c.; thirdly, plasters should be applied; fourthly, the abscess should be opened; fifthly, medicines should be applied to correct the faulty condition of the sore; sixthly, medicines for promoting granulations should be used; and seventhly, treatment should be directed to preventing deformity. This is the order f treatment for inflammation.

CHAPTER XVIII.

ON THE APPLICATION OF PASTES AND BANDAGES TO INFLAMED PARTS.

In the treatment of inflammation, pastes should be first em-oyed; for they are applicable to all its varieties, and are of most rvice. The pastes for each disease will be described under its ading. Next to them bandages are most important in the atment of inflammation, inasmuch as they serve to purify cers, promote their granulations, and strengthen the bones and ints. In applying medicines to the skin they should be rub-l against the direction of the hairs, not along their course. In is way the medicines stick well and enter the roots of the irs and the sweat bearing vessels, and thus produce their peliar effect upon the system. When the pastes are dry, they should be removed, otherwise they cause pain. Dry applications are injurious and irritating. There are three sorts of pastes, namely, *pralepa, pradeha* and *álepa.* When a paste is thin and cool, it is called *pralepa,* whether it has to be rubbed into the inflamed part or merely smeared over it. An application put upon the skin like a poultice, whether warm or cold, and small or large, is called *pradeha.* An application of intermediate thickness is called *álepa.*

Álepas are useful in diseases caused by deranged bile and blood. *Pradehas* relieve inflammation caused by deranged air and phlegm, promote union of divided parts, purify ulcers, promote granulation, and relieve pain in inflamed parts. They may be applied to the part, whether ulcerated or not. The form of *pradeha* which is applied to ulcers is called *kalka* or *nirudhda álepana.* It is used for restraining discharge from ulcers, for softening them and removing sloughs. It purifies the ulcers and removes all defects in their interior.

Álepanas are useful in inflamed parts which have not bee burnt with caustics. They correct the derangement of the h mours and relieve burning, itching and pain. For freeing skin from disease, *álepana* is the first or most important form medication; it is serviceable also in relieving disorders of t blood and flesh, burning and shooting pains and itching. T physician should also use this form of medication for the reli of diseases of the vital and private parts of the body. In pr paring these applications, six parts of clarified butter should mixed with 6 parts of medicinal substances, when they are i tended for use in inflammation caused by deranged bile; fo parts of butter, in that caused by air; and eight parts, in th caused by deranged phlegm. The thickness of *álepanas* sho be like that of a buffaloe's moist skin. It should not be appli at night; nor should it be applied to an inflamed part, wh it is hot; for the cold of the plaster, by suppressing or drivi inwards the heat, will cause mischief in the inflamed part.

Álepanas are useful, when applied in the daytime, in t diseases in which they are serviceable, and especially in inflammation caused by deranged blood or bile, by injuries or poisons. An *álepa* which was prepared the day before should never be used, for owing to its becoming thick, it causes heat, pain and burning. One application should not be made over another, nor should the *álepana* which has once been used and removed, be applied again; for it looses its properties from having become dry, and if re-applied causes harm.

I will now describe the articles required for bandaging inflamed parts. They are cloth made of flax, cotton, wool, silk, fine wove silk, washed silk, china silk and the fibres of the inner bark of plants, leather, portions of the shell of gourds, strings made of twining plants and fibrous plants, cotton fruits (fruit of *Bombax malabaricum*), blades of knives and plates of metals, &c. These articles should be employed with due regard to the nature of the disease, the time when they are used, and the purposes for
w they are suited.

ere are fourteen varieties of bandages, namely, *kośa*, *dáma*,
tika, *anuvellita*, *pratolí*, *maṇḍala*, *sthagiká*, *yamaka*, *khaṭvá*,
na, *vibandha*, *vitána*, *gophaṇá*, and *panchángí*. Their shapes
for the most part indicated by their names. Of these the
rm of bandage called *kośa* (egg shaped) is applied to the joints
the thumb and fingers. *Dáma* (tail of a quadruped) is tied
und a part for the relief of pain. *Svastika* (portico shaped) is
plied to the joints, to the spaces between the tendons of the
eat and second toe, to the eyebrows and the breasts, to the
les, palms and the ears. *Anuvellita* (encircling) is applied to
e limbs. *Pratolí* (brond) a broad bandage for the neck and
nis. *Maṇḍala* (circular) is applied to round parts. *Sthagiká*
iving firmness) a bandage filled with pastes and applied to the
ds of the thumb, fingers and penis. *Yamaka* (double) applied
ulcers. *Khaṭvá* (four tailed bandage) for the cheeks, temples
l lower jaw. *Chína* (banner) a bandage for the inner angles
the eyes. *Vibandha* (a firm bandage) for the back, abdomen
d chest. *Vitána* (canopy) a large bandage for the head.

Gophaṇá (a sling for throwing stones) a concave bandage for the chin, nose, lips, shoulders and pelvis. *Panchángí* (or bandage with five tails) for parts above the clavicle. That form of bandage should be applied to a part which is best suited to it. These bandages should be fixed to their places by being tied with strings, upwards, downwards and obliquely. Before applying a bandage, a thick cloth should be first placed on the paste applied to the affected parts. A thin bandage should then be evenly and uniformly tied round it, the left hand keeping the bandage cloth evenly spread out. The knot should not be tied over the ulcer or in such a way as to cause pain.

The tent introduced into an abscess should not be steeped in medicine which is very oily or very dry, nor should it be introduced too far in. From too much oil there is increased discharge, from a dry tent, the lips of the abscess may be cut or ruptured, and from its deep insertion the surface of the sore is bruised.

Bandages are applied with three degrees of tightness ac ing to the seat of the inflammation, namely, tightly, modera tightly, and loosely. A tight bandage causes pressure but pain. A loose bandage is loose and relaxed. An evenly appl bandage is neither very tight nor very loose. A tight banda should be applied to the buttocks, sides of the abdomen, axill groin, chest and head. An evenly applied bandage should used for the extremities, face, ears, neck, penis, scrotum, bac sides and the belly. The eyes and the joints should be loose bandaged. In the case of an inflammation caused by bile, even bandage should be applied, where otherwise a firm o should have been used, and a loose one should be substituted f an even bandage, and none should be applied to a part where loose one ought to be used. The same remarks apply to infla mation caused by deranged blood. In inflammation caused deranged phlegm an even bandage should be used in place o loose one, a firm one in place of an even bandage, and where tight bandage is used, it ought to be made very tight. T same remarks apply to inflammation caused by deranged air.

In autumn and summer the bandage should be applied twice a day in disease caused by deranged bile and blood. In winter and spring bandages should be applied 3 times a day in disease caused by deranged phlegm and air. In this way, alteration in the mode of applying bandages should be adopted according to the seasons, &c. If a light bandage is applied where a loose or moderately firm one should have been used, the medicine applied in the tent is rendered useless, and there is increase of pain and swelling. If a loose bandage is applied where a tight or moderately firm one should have been used, the medicated tents fall out, and the bandage becoming loose bruises the ulcer. If a moderately tight bandage is applied where a loose or tight one should have been used, then it does no good. When a bandage is properly applied according to rules, it relieves pain, purifies the blood and softens the part. When a bandage is not applied, the diseased part is injured by flies, mosquitoes, herbs, wood, stones, ashes, cold wind, heat, &c., and it is affected with various sorts of pain and other complications. It assumes an unhealthy aspect, and the pastes, &c. applied to it soon become dry.

When bones are comminuted, smashed, broken, dislocated or put out of place, and when nerves and veins are torn, they rapidly get well by the application of bandages, and the patient sleeps, sits and goes about comfortably. The patient who sleeps and sits with ease has his inflammation rapidly cured.

No bandages should be applied, when there is swelling, heat, redness, pain and suppuration caused by deranged bile or blood or by injuries or poisons, or when sores caused by caustics or the actual cautery are suppurating or sloughing. Bandages should not be applied in the following cases, namely, ulcers caused by burns, leprous ulcers, the boils or carbuncles of diabetic patients, the ears when bitten by rats, ulcers caused by poisons, suppuration of muscles, and severe inflammation in the anus.

The sensible physician should by his own intelligence decide in what cases to apply bandages and where not. He should also take into consideration the nature of the country and the season, the humours deranged and the character of the ulcers before applying bandages. There are three modes of tying bandages, namely, upwards, downwards and obliquely.

I will now describe the mode of applying bandages. The cloth covering the medicine should be thick, and the bandage cloth thin. The tent introduced into the abscess should not be too oily. A very oily tent increases discharge and a dry one weakens the sore. A properly oiled tent promotes healing, but a deeply inserted one bruises the sore, renders it uneven, obstructs the outlet, and increases the discharge. Medicines should be applied according to the character of the ulcer. In sores caused by bile or blood the discharge should be pressed only once, but in those caused by phlegm and air this may be done oftener. The sores should be pressed with the palms of the hand and the discharge made to come out in the proper direction of the outlet.

All sorts of bandages may be applied to the private parts and to the joints. In applying bandages to divided lips and broken bones for promoting their union, the knowing physici be should act according to the rules laid down, as also according h to the dictates of his common sense, so that in getting up or sitting down, lying down or walking or travelling in various forms of conveyances, the parts may not be injured. The following forms of ulcers cannot be cured without the use of bandages, namely, deep ulcers of the skin and muscles, ulcers affecting the joints, bones, internal viscera, veins and nerves, and thick, deep and uneven ulcers.

CHAPTER XIX.

ON THE GENERAL RULES TO BE OBSERVED BY PATIENTS SUFFERING FROM INFLAMMATIONS.

Patients with inflammatory affections should confine themselves to the house from the very commencement of their illness. The house must be on a proper site. The room must be pure and not exposed to wind or sun. Where there is no exposure to air, bodily, mental or accidental diseases do not occur. In such a room the bed for the patient should be spacious and well spread. The patient should lie with his head towards the east, and an iron weapon should be kept in the bed. This is supposed to keep away evil spirits. In a spacious bed the patient can lie comfortably and turn from one side to another. The gods generally reside towards the east; hence in respect to them the head of the patient should be directed to that direction. The patient should lie comfortably, surrounded by such friends as wish him well and speak sweetly; for such friends by their conversation and encouragement relieve the pain of inflammation.

The patient should not sleep during the day. Sleeping during the day causes a sense of weight in the body and much itching, swelling, pain, redness and discharge in the inflamed part. He should be very careful in protecting from injury the diseased part when getting up, lying down, turning on the side, going about, or speaking loudly. The patient afflicted with inflammation should not exert himself for getting up, going about, travelling in conveyances or speaking too much, even if he is capable of doing these things. Too much indulgence in these acts causes pain in the diseased part from derangement of the air. Those women with whom sexual intercourse may be indulged in, should not be seen, spoken to, or touched. They should be avoided and kept at a distance. If from the sight of a woman, discharge of semen at any time occurs, then the evils of sexual intercourse will afflict the patient, although he may not have indulged in it. The following articles of diet should be avoided, namely, new rice, *máshkaláya* (pulse of *Phaseolus Roxburghii*), sesamum seeds, *kaláya* (*Pisum Sativum*), *kulattha* (*Dolichus uniflorus*), *níspáva* (*Vigua Catjung*), green pot-herbs, acids, salt, acrid substances, treacle, cakes, dry meat, dry herbs, mutton or goat's flesh, or the flesh of land animals, fat, cold water, rice and peas boiled together, rice and milk boiled together, curdled milk, milk, butter-milk, &c. The articles comprised in the above list, commencing with new rice and ending with butter-milk, all increase the bad humours and secretion of pus.

Persons accustomed to drink should avoid taking the following varieties of spirituous liquors, namely, *maireya* (wine made from the blossoms of *Lythrum fruticosum*), *arishṭha*, (wine made with chebulic myrobalans), *ásava* (spirit distilled from molasses), *sidhu* (spirit distilled from sugar-cane juice) and *surá* (spirit distilled from rice). Spirituous liquors are endowed with acid, dry, pungent, heating qualities. They rapidly affect the system, and their use soon endangers inflamed parts.

The following should be avoided, namely, wind, sun, dust, smoke, dew, excess in eating, hearing of or seeing evil things, envy, grief, fear, anger, anxiety, keeping up at night, sleeping during the day, sitting in improper places, fasting, too much talking, moving about, cold wind, indigestible food, incompatible food, flies and other annoyances. These are the causes which increase heat of body and weaken the blood and muscles. Patients thus affected cannot digest their food. From indigestion the humours are deranged, and derangement of the humours causes swelling, pain, discharge, heat and suppuration.

The patient suffering from inflammation should keep his hairs and nails cut short, he should be pure in his person, put on white clothing, and should devote himself to religious duties and the worship of the gods, bráhmaṇas and spiritual guides. For powerful demons, the followers of *Kuvera* the god of wealth, and of *Kartikeya* the commander-in-chief of the gods, go about for committing mischief. They are fond of flesh and blood and go near persons with ulcers, either in expectation of worship or for destroying their lives. The patient should therefore heartily try to please these expectant demons by burning a light and providing sacrifices and articles of food for them. When satisfied, they do not injure those who thus preserve themselves. Therefore the patient should constantly and carefully be surrounded by people, a light should be continually kept burning and water, fried rice, flowers, garlands of flowers, weapons, &c provided in the room. The patient should be diverted by pleasant and interesting stories. Delightful stories cheer the mind and inspire hope and thus enables the patient to recover soon. The physician and priest should protect the patient at dawn and the evening by recitation of the four Vedas, namely, *Rig*, *Yaju*, *Sáma* and *Atharva* and of other beneficent *śástras*.

Pastils should be made of the leaves of *Sinapis nigra* and *Azadirachta Indica* with clarified butter and salt, and these should be burnt morning and evening for ten days continually without fail. The following plants should be kept near the head of the patient, namely,

Chhatra	(*Fæniculum vulgare*),
Atichhatra	(*Peucedanum Sowa*),
Lángúlí	(*Gloriosa superba*),
Jaṭilá	(*Nardostachys Jatamansi*),
Brahma cháriṇí	(*Herpestis Monnieria*),
Lakshmí,	(A drug, also called *Ridhi*, not available now),
Guhá	(*Desmodium gangeticum*),
Atíguhá	(*Uraria lagopodioides*),
Satavíryá *Sahasra víryá*	(White and red varieties of *Cynodon Dactylon*).

and

Siddhárthaka	(White mustard seed).

The inflamed part should be fanned with a *chámar* or yak-tail, t should not be bruised, pressed or scratched and it should be protected by lying in the recumbent posture. As the deers desert a forest inhabited by a lion, so the demons who go about t night, desert the patient who observe the rules above men-ioned.

Old rice of the variety called *śálí* should be boiled to a pulp and iven warm with the meat of wild animals. These articles favour he rapid cure of inflammations. The following vegetables may e given fried with clarified butter and with the addition of salt, pomegranates and *ámlakí* (fruit of *Phyllanthus Emblica*), namely,

Tanḍulíyaka	(*Amaranthus polygamus*),
Jívantí,	(*Cælogyne ovalis*),
Sunishannaka	(*Marsilea quadrifolia*),
(*Vástuka*)	(*Chenopodium album*),
Bála múlaka	(Tender or new radishes),
Vártáka	(*Solanum Melongena*),
Paṭola	(*Trichosanthes dioica*) and
Kára Vellaka	(*Momordica Charantia*).

Other vegetables with properties similar to the above may be given, as also soup, made of *mudga* (*Phasiolus mungo*) and other pulses along with the rice. Flour of barley, rice-gruel, and sour-gruel may be given. The water for drinking should be boiled.

Exercise causes swelling, night-keeping causes swelling and redness, and sleeping during the day causes the two symptoms mentioned above, as also pain. All these, and death in addition are caused by sexual intercourse, if indulged by a patient with inflammation. The patient who does not sleep during the day, keeps himself confined in a closed room, without ventilation and follows the directions of his physician, soon gets well. T patient with inflammation, who acts according to the rules abov described attains happiness and long life, as said by Dvanantar

CHAPTER XX.

ON THE GOOD AND EVIL QUALITIES OF DIFFERENT ARTICLES OF DIET.

Some say that what is good for air is injurious to bil and vice versa, hence there is no article of food which ca be said to be absolutely good or bad. This opinion is no correct. For there are substances which are naturally and other which by combination are either absolutely good or injuriou or endowed with both properties. Amongst them the followin are absolutely beneficial, in as much as they form constituen parts of the body after digestion, *viz.*, water, clarified butte milk, rice, &c. Fire, caustics and poisons are absolutely injurious from their burning, escharotic and destroying qualities. Other articles when combined together act like poisons. Those articles which are suitable for all and not for bile have both good and bad properties in them. For the guidance of all men in the matter of their diet the articles included under these different classes are now being described.

The following articles are absolutely good.

Raktaśáli	Variety of cold weather rice known as *dáudkhaní* in the bazars.
Shashṭika	Rice grown in the hot weather in low lands.
Mukundaka	Black variety of hot weather rice.
Páṇḍuka	Cold weather rice with pale husks.
Pítaka	varieties of rice with different names.
Ganguka	
Pramodaka	
Kálakáśanaka	
Pushpaka	
Kardamaka	
Śakunáhṛit	
ugandhaka	
Kalama	
Nívára	Wild varieties of Oryza sativa.
Kodrava	*Paspalum scrobiculatum,*
Uddálaka	Wild variety of *Paspalum scrobiculatum.*
Śyámáka	*Panicum frumentaceum.*
Godhuma	Wheat, (*Triticum vulgare*)
Veṇu	Seeds of *Bambusa arundinacea.*
Yava	Barley, *Hordeum hexastichum* and other cereals.

The flesh of the following animals.

Eṇa	Black deer.
Hariṇa	Copper coloured deer.
Kuranga	Antilope.
Mṛiga Mátṛiká	Female antilope
Svadamshṭrá	Crab.

Karála	Musk-deer.
Krakara	A sort of Partridge (*Perdex Sylvatica*).
Kapota	Pigeon.
Láva	A sort of quail (*Perdix Chinensis*),
Tittiri	Francoline partridge.
Kapinjala	A variety of Francoline partridge.
Vartíra	A sort of quail.
Vartika	A sort of quail.

The following pulses.

Mudga	(*Phaseolus Mungo*),
Vana Mudga	(*Phaseolus trilobus*),
Makushṭha	(*Phaseolus aconitifolius*),
Kaláya	(*Pisum sativum*),
Masúra	(*Vicia lens*),
Mangalya	(Pale variety of *Vicia lens*),
Chaṇaka	*Cicer arietinum*),
Háreṇu	(Variety of *Pisum sativum*),
A'ḍhakí	(*Cajanus Indicus*), and
Satílá	(Variety of *Pisum* commonly called T *Kaláya*.

The following pot herbs.

Chilli	(*Chenopodium album* variety of),
Vástuka	(*Chenopodium album*),
Sunishaṇṇaka	(*Marsilea quadrifolia*),
Jívantí	(*Cœlogyne ovalis*),
Taṇḍulíyaka	(*Amaranthus polygamus*),
Maṇḍúkaparṇí	(*Hydrocolyle Asiatíca*).

Milk, clarified butter, rock salt, pomegranates, and embli myrobalons. The above is the list of articles of diet suitable f all. Besides these continence, sleeping in a place where the is no current of wind, drinking boiled water, sleeping durin the night and exercise are all very beneficial. The article which are absolutely beneficial and absolutely injurious ha now been mentioned. Those articles which suit bile but not a and *vice versa* are both useful and injurious.

Other articles become poisonous from combination. The following articles act as poisons, if taken along with milk, hence they should never be taken with milk, namely; fruits of creepers, mushrooms, the tops of the bamboo plant, salt, acid fruits, the pulse of *Dolichas uniflorus*, *pinyáka* (cakes made of sesamum seeds) curdled milk, cakes fried in oil, dry pot, herbs, flesh of goats and sheep, wines, *jámvava*, a spirit distilled from the juice of the ripe fruits of *Eugenia Jambolana*, shrimps, flesh of the guano, and wild boar.

The sensible physician will prescribe the diet for his patients after taking into consideration the nature of the disease, the peculiarity of constitution, country, season, bodily conformation, and the condition of the digestive fire. When there is a great change in the system from advanced disease, the physician should order that diet which is calculated to preserve health without reference to its normal character of being good or bad. Of milk and poison it is ordinarily said, the former is absolutely beneficial, and the latter absolutely injurious. My son Susruta you should know that in the treatment of disease, the combinations of articles with different tastes and of different waters, &c. are also in the same say way absolutely beneficial.

I will now describe the combinations of food that prove injurious. The flesh of domestic animals and of animals living on land should not be taken with rice that has germinated, with fat, honey, milk, treacle and *másha* pulse of (*Phaseolus Roxburgii*). The herbs called *rohiṇí* and *játu** should not be taken with honey and milk. The meat of *baláka* (a small kind of crane) should not be taken with *váruṇí* (a sort of wine or sour gruel. The herb called *káka máchi (Solanum nigrum)* should not be taken with black or long pepper. The herb called *náḍíbhanga* (*Corchorus olitorius*), fowl and curdled milk should not be taken together. Hot water should not be drunk after taking honey. Meat should not be taken with bile. Wine,

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* These two hot herbs cannot be identified.

krisará (gruel made with rice, sesamum seeds, the pulse of *Phaseolus Roxburgii*,) and *payasa* (milk and rice boiled together) should not be taken together. Cakes made of sesamum seeds should not be taken with sour gruel. The products of the sugar cane should not be taken with fish. The herb called *káka máchí (Solanum nigrum)* should not be taken with treacle, radishes with honey, the meat of the wild boar with treacle or honey; radishes, man goes, black berries (*jamva*), porcupine, hog, guana all sorts of fishes and especially shrimps should not be taken with milk. Plantains and the fruits of *Borassus flabelliformis* should not be taken with milk, curdled milk or butter milk. The fruit of *Artocarpus Lakoocha* should not be taken with milk, curdled milk, or soup made of *másha* (*Phaseolus Roxburghii*), with honey or with clarified butter. It should not also be taken either before or after taking milk.

I will now describe the modes of preparation of articles of diet which render them injurious. Pigeons should not be eaten fried in mustard oil. The flesh of *kapinjala* (Francoline partridge) peacock, láva (quail), the sort of partridge called *titt* and guana should not be taken cooked with castor oil or o fire made of castor oil plant. Honey and clarified butter whic has been kept in a bell-metal utensil for ten nights should n be taken. Warm food should not be taken in the hot mont *Káka máchí* (*Solanum nigrum*) should not be taken cooked i a pot with fish or ginger in it. Sesamum seeds bruised shou not be taken with *upadiká* (*Basella rubra*). *Valáká* (a kind o crane) fried in lard should not be taken along with cocoanuts. *Bhása* (a sort of water-fowl) should not be taken roasted on fire.

I will now speak of the proportions of articles of diet that should not be used together. Honey and water, or honey and clarified butter should not be taken in equal quantities. Two sorts of oleaginous substances, as also oleaginous substances with honey or water should not be taken at one time. Rain water especially should not be taken after any oleaginous substance.

I will now speak of the various tastes which when combined together become injurious in taste, power or in the after-result of digestion.

The sweet and acid tastes are incompatible as regards power and taste, and the sweet taste in combination with the saline or acrid tastes are objectionable in all the three ways above mentioned. The combination of sweet and bitter tastes are injurious in taste and after digestion. The sweet and astringent tastes, and the saline and acid tastes are incompatible in taste only, acids and acrids are incompatible in taste and after digestion. Acids and bitters, and acids and astringents are incompatible in taste, power, and after digestion. Saline and acrid tastes are injurious after digestion. Saline and bitter tastes, and saline and astringents tastes are incompatible in all the three ways. Acrids and bitters are incompatible in taste and power, acids and astringents, and bitters and astringents are incompatible in taste only. Articles with excess of any of the qualities, such as excessively dry, oily, hot or cold things should be avoided. On this subject there are the following verses:

Those articles which are thus incompatible in taste, power and after digestion are altogether injurious. The rest have both good and evil effects. The imprudent man who indulges in articles of diet which are incompatible in taste and power gets diseases and debility of the senses, and may even die. The imprudent man who after taking incompatible articles of diet does not bring them out by vomiting or purging, suffers from disease, from the chyle, blood, &c., being affected. Purging, vomiting or the use of alteratives remove the diseases caused by incompatible articles of diet, or they may be neutralized if some beneficial or antidotal article is taken before their ingestion. Injurious articles do no harm when taken in small quantities or by those who are accustomed to their use, by young persons or those who have strong digestive power, by the strong or the athletic.

The properties of air are now being described. East wind has the sweet and saline tastes and is unctuous and heavy. It causes burning of the body and deranges the bile and blood. It increases the illness of persons suffering from ulcers, poisons and inflammation, and of persons of phlegmatic constitution. It agrees with persons in whom air is predominant or in whom the phlegm is dried up, or with persons who are tired from over-work. It especially increases the discharge from ulcers.

South wind is sweet, cooling, astringent, light and invigorating, and useful for strengthening the eyes. It relieves derangement of blood and bile, and does not increase the air. West wind is pure, dry, strong, and sharp. It decreases the gloss and strength of the body, and dries the phlegm and fat. It dries up the bodies of living beings and reduces their vitality. North wind is unctuous, mild, sweet, astringent and cold. It does not increase any of the humours, hence it increases the strength and secretions of the healthy. It is particularly beneficial to the weak and consumptive, and to those suffering from the effects of poisons.

CHAPTER XXI.

ON AIR, BILE AND PHLEGM, AND THE MODE IN WHICH CAUSE DISEASE.

Air, bile and phlegm are the causes of the formation body. In their normal state they support the body by rei ing in its upper, middle and lower portions like three p supporting a room, hence some one has compared the body house with three pillars. Their derangement is the cause death. These three humours and the blood are continually present in the body during its formation, maintenance and destruction On this subject there is the following verse :

Without air, bile, phlegm or blood no living being can exist They constantly maintain the body.

The root *vá* means motion and smell. The root *tap* means heat, and the root *s'lish* means to embrace. By the addition of

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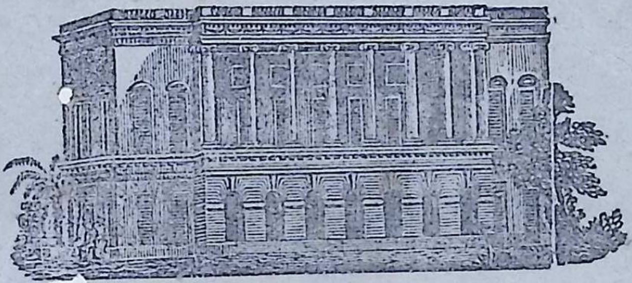

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सुश्रुतसंहिता ।

THE SUS'RUTA-SAMHITA'

THE HINDU' SYSTEM OF MEDICINE ACCORDING TO SUS'RUTA

TRANSLATED FROM THE ORIGINAL SANSKRIT

BY

UDOY CHA'ND DUTT,

CIVIL MEDICAL OFFICER.

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the affix *kṛit*, &c., to those roots, the words *váta* (air), *pitta* (bile), and *kapha* (phlegm) are formed.

I will now mention the seats of these humours. Briefly speaking the seat of air is the space between the hips and the anus. Above the hip and anus and below the navel is the organ called *pakváśaya* or seat of digestion. Between this *pakváśaya* and the *ámáśaya* bile remains. The seat of phlegm is the *ámáśaya* (stomach). The three humours are each divided into five varieties. The varieties of air will be described in the chapter on diseases caused by deranged air. The seats of the five varieties of bile are the liver, spleen, heart, lens of the eye, skin, as also the place mentioned above. The seats of the five varieties of phlegm are the chest, head, throat, the joints, as also the place mentioned above. These are the seats of the three humours when they are not deranged. On this subject there is the following verse:

> As the sun, moon and air maintain the earth by imparting, ing away and diffusing power, so the three humours maintain the body by analogous actions.

It may be asked if there is any other fire besides bile in the system, or is the bile, fire itself? The answer is, no other fire can be made out in the body. From the heating nature of bile, it acts like fire in the functions of burning and digesting, and it forms the internal heat of the body. When the internal heat of the body is weakened, it is increased by giving substances which increase bile, and when the heat is in excess, it is relieved by cooling treatment. We also see that in the *Ágama* (*Áyurveda śástras*) it is stated that bile is fire. Hence there is no other fire in the body except bile.

The bile seated between the *ámáśaya* and *pákváśaya* by some process which cannot be seen, digests the four sorts of food and drink, and separates the chyle from the urine and fœces. The bile from this place by its own power assists the biles in the four other parts of the body in performing their heating functions. This bile is also called *páchaka agni* or digesting fire. The bile that exists in the liver and spleen is called *ranjaka agni* or the colouring fire. It colours the chyle red. The bile situated in the heart is called *sádhaka agni,* and is said to fulfil the desires of the mind. The bile situated within the lens of the eye is called *álochaka agni.* It enables the eye to perceive images. The bile seated in the skin is called *bhrájaka agni.* It digests the substances absorbed by the skin from embrocations, lotions, baths, plasters, rubbing of oil, &c. It also produces shadows. On this subject there is the following verse:

Bile is a pungent fluid with fœtid smell and yellowish blue colour. Hot bile has an acrid taste, and digested bile an acid taste.

I will now describe the seats of phlegm. The *ámáśaya* is inferred to be the seat of phlegm, because it must be situated above the seat of bile, from the opposite qualities of bile and phlegm and from the tendency of bile to ascend upwards. en action of bile and phlegm has been compared to that of the [illegible] and moon on the earth.[1]

The phlegm is the receptacle of the four varieties of food, tho is, it envelops the food. From its fluidity the food becom moist, is separated from mixtures, and properly digested. From its sweetening, emmollient and liquifying qualities, the phlegm in the *ámáśaya* is inferred to be sweet and cool. The phlegm in the *ámáśaya* assists by its own power the phlegm situated in the other four parts of the body, and performs the functions o water in the body generally. The phlegm situated in the ches maintains the lower parts of the spine, and by its own powers mixes with the chyle and enables the heart to perform its func tions. The phlegm in the root of the tongue, and the throat, assists in enabling the tongue to perceive the different sorts of tastes. This is also due to the cooling quality of the tongue. The phlegm in the head, from its being in contact with the oily matter of the brain, assists the senses in performing their functions. Phlegm is white, heavy, unctuous, emmollient and cool. Undigested phlegm is sweet, digested phlegm is saltish.

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[1] It is said that the sun heats the earth, and the moon moistens and cools it and that without the intervention of the moon, the sun would burn the earth In the same way if the phlegm was not seated above the bile fire, the latte would burn the body from its tendency to go upwards. The water of th phlegm keeps the fire down and allows the food to be digested, instead of bein burnt in the *ámásaya.*

It has been before explained that the liver and spleen are the seats of blood. The blood in these organs assists them in their functions. On this subject there is the following verse:

Blood is neither hot nor cold. It is sweet, unctuous, of red colour, heavy and with the smell of raw meat. Its heating or burning quality is like that of bile.

These are the seats of the humours. In these places they accumulate. The reasons of their accumulation have been already mentioned in the chapter on the Seasons. When the humours are increased, the following symptoms are noticed: fullness and dullness of the hollow viscera, bilious complexion, coldness of the limbs, sense of weight in the body, disinclination for exertion, and aversion to the causes which has caused the accumulation of the humours. This stage is the first period or time for treatment.

I will now describe the causes of the derangement of the humours. The following causes produce derangement of the air. Fighting with strong people, excessive exercise, venery or study, falls from a height, running, pressure (that is, the body being much pressed), injuries, fasting, remaining in water, swimming, keeping up at night, carrying heavy weights, riding on elephants, horses or cars, or walking on foot. Articles with acrid, astringent or bitter tastes, dry, light or cooling things, dry herbs, and dry meat. The following varieties of cereals and pulses also range the air, namely,

varaka, (*Panicum miliaccum*),
uddálaka, (Wild variety of *Paspalum scrobiculatum*),

koradúsha,	(*Paspalum scrobiculatum*),
śyámáka,	(*Panicum frumentaceum*),
nivára,	(Wild variety of *Oryza sativa*),
mudga,	(*Phaseolus Mungo*),
masúra,	(*Vicia lens*),
áḍhakí,	(*Cajanus Indicus*),
hareṇu,	(variety of *Pisum sativum*),
kaláya,	(*Pisum sativum*),
nishpáva,	(*Vigna Catjang*),

The following causes also derange air; namely, little food, irregular food, excessive eating, restraining by force wind, fæces, urine, semen, vomiting, sneezing, eructation, tears, &c. Air is especially deranged in the cold, cloudy, windy, and rainy seasons, in the morning and evening and after digestion of food.

The following causes produce derangement of bile: anger, grief, fear, labour, fasting, indigestion, indulgence in sexual intercourse. The use of acrid, saltish, pungent, hot, light, and indigestible articles of diet, sesamum oil, oil-cake, *kulattha* (*Dolichos uniflorus*), mustard seeds, linseed, leaves of *Moring pterygosperma*, flesh of the guana, fish, meat of goats and sheep, curdled milk, butter-milk, inspissated milk, whey, fermented barley-water, spirituous drinks, acid fruits, acid, fermented liquids, &c. Bile is especially deranged by heat, in summer and in autumn. During the day it is deranged in midday and midnight and when the food is being digested.

Phlegm is deranged by the following causes: Sleeping during the day, want of exercise, and idleness. The use of sweet, acid, saline, cold, oily, heavy, emmollient and demulcent articles, *háyanaka*, (a sort of winter rice), barley, *naishadha* (a sort of rice), *itkaṭa* (*Abelmoschus esculenta*), *másha* (*Phaseolus Roxburghii*), *mohá-másha* (*Vigna sinensis*), wheat, gruel made of ground sesamum seeds, curdled milk, milk, gruel made of sesamum, rice and máshakaláya, rice and milk boiled together, preparations from the sugar-cane juice, meat of animals living in water or marshes, fat, tubers of water-lilies, *kaśeruka* (*Scirpus kysoor*), *śringáṭaka* (fruit of *Trapa bispinosa*), sweet fruits of creepers, full meals, eating soon after a meal, &c. Phlegm is especially deranged in the winter and spring. During the day it is deranged in the morning and evening and immediately after eating.

Blood is deranged when the bile is deranged. It is also deranged by frequent use of liquid, oily and indigestible food, sleeping during the day, anger, fire, exposure to sun, labour, injury, eating indigestible and incompatible articles of food, &c.

As the blood is not deranged without one of the three humours, air, bile and phlegm being deranged, the time of derangement of the blood should be inferred from that of the accompanying deranged humour. When the humours are deranged, they cause pain in the hollow viscera, motion of air in them, acid eructations, thirst, burning of body, disinclination for food and nausea. This is the second period for treating deranged humours.

I will now describe the mode in which the deranged humours are diffused through the body. As in the preparation of wine, so the mixture of a ferment with ground-rice causes the mass to swell up, so the exciting causes above detailed increase or swell up the humours. Air has the power of motion, and through this power the humours are diffused throughout the body. It is true, air is inanimate, but then it possesses in abundance the quality called *raja* or quality of passion, and *raja* is the quality which brings about all sorts of actions. As a large collection of water on one side of an embankment breaks through the latter, mixing with the water on the other side of the mound and spreads in all directions, so a humour when increased mixes with one or both the other humours or with the blood and spreads through the body in various directions. There are fifteen forms in which the humours may be deranged, namely, air, bile, phlegm and blood, each separately; air and bile, air and phlegm, bile and phlegm, air and blood, bile and blood, phlegm and blood, in combinations of two each; air, bile and blood; air, phlegm and blood; bile, phlegm and blood; air, bile and phlegm; and air, bile, phlegm and blood in combination.

As it rains only where clouds form in the sky, so the deranged humours produce morbid conditions in those parts of the body where they are present, whether it be the entire body, half the body, or any particular limb only. When a humour is deranged to a small extent only, it remains in its passage. In course of time if irritated by some cause, and there is nothing to check its progress, it becomes quite deranged. If air goes to the place of bile, it should be treated like bile, if bile goes to the seat of phlegm, it should be treated like phlegm, and if phlegm goes to the seat of air, it should be treated like air.

When the deranged humours spread through the body, the following symptoms are produced. When air is deranged, it goes in the wrong way and causes gurgling in the bowels. When bile is deranged it causes burning pain, drying sensation, sense of heat in the body and eructation of hot wind. When phlegm is deranged it causes disinclination for food, indigestion, lassitude and vomiting. This is the third period for treatment.

I will now describe the places where these humours lodge when deranged. They produce diseases after reaching different parts according to the nature of the organs contained in them. When they enter the abdomen, they cause tumours, deep-seated abscesses, loss of digestive fire, flatulence, cholera, diarrhœa, &c. When they reach the pelvis, they cause urinary disorders, calculus, suppression of urine, deranged urine, &c. When they reach the penis, they cause stricture of the urethra, chancres, a peculiar form of sore called *śukadosha,* &c. When they reach the anus, they cause fistula-in-ano, piles, &c. In the scrotum they cause scrotal tumours. When they reach the parts above the clavicles, they cause disorders of the organs situated above them. When they enter the skin, flesh, and blood, they cause the minor diseases, skin diseases, erysipelas, &c. When they enter the fat, they give rise to enlarged glands, tumours, bronchocele and *alagí* (an eye-disease), &c. When they enter the bones, they cause deep-seated abscesses, pustules in the feet, &c. In the feet they cause elephantiasis, leprosy, swelling of the ankle, &c. When they spread throughout the body, they cause fever and the diseases which affect the whole body. The premonitary symptoms of the different diseases thus caused will be described in the chapters describing those diseases. The period of the appearance of premonitary symptoms is the fourth period of treatment.

I will now describe the stage of appearance or development of disease. Such diseases as inflammatory swellings, enlarged glands, large abscesses, erysipelas, fever, diarrhœa, &c., are readily known by their symptoms. The stage of developed disease is the fifth period of treatment. On this subject there are the following verses:

When any disease opens out a part of the body and forms a sore, it is the sixth period of treatment. Fever, diarrhœa and some other diseases have a long duration, and if not treated become incurable. He who can make out the increase, derangement, spreading, remaining dormant in one place, development into disease, and breaking out of the humours, is the true physician. If the humours can be rectified in the stage of increase, they do not advance any further. They become more and more powerful as they advance into the successive stages. When a humour is deranged, the other humours either one, two or all may also be deranged and follow the first one. In this mixed derangement, the humour that is most deranged should be treated first, but in such a way that the other humours may not be increased. The same plan of treatment should be followed in the case of derangement of all the humours at one time.

CHAPTER XXII.

ON DISCHARGES FROM SORES.

The skin, flesh, veins, nerves, bones, joints, viscera, and vital parts are the eight seats of suppuration or ulceration. In these places abscesses form. Of these, abscesses in the skin are readily amenable to treatment. The rest are difficult to cure if they open of themselves. Abscesses ordinarily have square, round or triangular shapes. Those with other forms of bad shapes are difficult to cure. Ulcers in persons who have self-control and who are treated by good physicians soon granulate. Ulcers in persons who commit irregularities, and who are not treated by good physicians, become foul from increase of the humours. The following are the characters of foul or unhealthy abscesses and ulcers: having a very small or a very large opening, being very hard or very soft, much elevated or depressed, very hot or very cold, having any other colour except black, red, yellow and white, having a terrible appearance, being filled with putrid pus, flesh, veins, nerves, &c., discharging putrid pus, extending upwards and swelling up, having a disagreeable appearance or smell, being very painful, being complicated with burning, suppuration, redness, itching, swelling, boils, &c., discharging much impure blood, being very chronic, &c. These abscesses are divided into six varieties according to the derangement of the humours, and their treatment should be adapted to their characters.

I will now describe the characters of the discharges from the varieties of ulcers. In cases of bruises or lacerations or incised or penetrating wounds of the skin and in pustules upon it, the discharge is like water, having a slight smell of raw meat and a yellowish colour. The discharge from suppuration seated in muscles is like clarified butter, thick, white and shiny. In wounds of veins there is copious discharge of blood. In suppuration of veins there is copious discharge of watery matter as if from a water-pipe. The discharge comes out in a thin interrupted stream. It is slimy and tenacious and resembles frost in appearance. The discharge from ulceration in nerves is oily, thick, and *bloody* and resembles the mucous discharge from the nose. In suppuration of bones, whether from injury, fracture, wound, or disease, the bones become light and look like washed shells. The discharge is mixed with marrow and blood and is oily. In suppuration of joints the discharge does not come out on pressure but on contracting or extending, elevating or depressing the limbs, on moving about, on coughing or straining. The discharge here is shining, tenacious, frothy and has the appearance of pus and blood beaten up together. In ulceration of the viscera there is discharge of blood, urine, fœces, pus and watery fluid. When there is suppuration in the vital parts, it is covered with the skin, &c., so the character of the discharge need not be mentioned.

When deranged air causes suppuration in the skin, muscles, veins, nerves, bones, joints and viscera, the discharges from the parts are respectively variegated in colour, blackish, like frost, like whey of curdled milk, alkaline water, and water in which meat or the husk of rice has been washed. When from bile, the colours are like those of the fat and urine of cows, ashes, conch-shell, water in which astringent barks have been boiled, honey and oil respectively. When from blood, the characters are the same as when from bile, with a strong smell of water in which meat has been washed. When from phlegm, the discharge is like butter, sulphate of iron, marrow, flour, sesamum seed, cocoanut water, and hog's lard respectively. When from all the humours deranged together, the discharges resemble in colour, sesamum seeds, cocoanut water, the juice of *ervâru* (fruit of *Cucumis melo*), the transparent upper portion of fermented rice-water, *priangu* (fruit of *Aglaia Roxburghiana*), liver and soup made of *mudga* (pulse of *Phaseolus Mungo*) respectively.

The discharge from the digesting organ is like bran-water; the discharge from the seat of blood is like alkaline water; the discharge from the stomach or the joint of the neck is like water in which pulses have been steeped. All these cases are incurable. The physician should first ascertain the character of the discharges and then commence treatment.

I will now describe the pains that attend the different varieties of inflammation. In inflammation caused by air there are sharp shooting, tearing, whipping, cutting, stretching, stirring, casting, tingling, burning, breaking, tearing as by stones, tearing as by nails, pulling, trembling, separating, spreading, distending, stiffening, benumbing, and bending, and also pains as if by driving of hooks. In this form of disease these various sorts of pain increase without cause, or return frequently.

In inflammation caused by bile there are burning, drying, heating pains, and it seems as if smoke is coming out of the inflamed part. There is a feeling as if the body is being burnt by fire scattered over it, there is increase of heat, and the sore feels as if burnt with caustic. Inflammation caused by deranged blood has the symptoms of that caused by bile.

In inflammation caused by phlegm there occurs itching, sense of weight, numbness and slight pain. There is a feeling as if the body is rigid, cold and covered with moisture.

When all sorts of pain occur simultaneously the inflammation is inferred to be caused by derangement of all the humours.

I will now relate the various colours presented by ulcers. In those caused by deranged air, the following colours are seen, namely, colour of burnt pigeon bones, variegated, dark-red and black colours. In ulcers caused by deranged blood and bile, blue, yellow, green, brown, dark-red, tawny and dull-brown colours are seen. In those caused by phlegm the shining white and yellowish white colours occur. On this subject there is the following verse:

This collection of the different varieties of pains and colours have not been said merely for ulcers. The physician will note that they apply to all sorts of swellings.

CHAPTER XXIII.

ON CURABLE AND INCURABLE INFLAMMATIONS.

Inflammations occurring in persons who are young, strong and brave, and who have firm bodies, are curable. When all these four qualities exist together in the same patient, the disease is easily remedied. The ulcers of young people granulate soon, because their *dhátus* or tissues, &c., are new or growing. Persons with firm constitutions have strong and abundant muscular substance; hence their veins and nerves are not touched or injured during the act of opening abscesses. Pain, injury or want of food, &c. do not injure strong persons and produce any other disease in them. Brave persons undergo even severe operations or modes of treatment without feeling any pain. Hence the inflammations of patients possessing these qualities are readily curable. Opposite qualities are seen in the old, thin, weak and timid. Ulcers in the loins, genitals, anus, forehead, cheeks, lips, back, ears, scrotum, abdomen, base of the neck and in the interior of the mouth are readily curable. Those occurring in the eyes, teeth, nose, angles of the eyes, internal ear, navel, belly, raphe of the perinium, buttocks, sides, loins, breast, armpits and joints are difficult to cure; as also sinuses which discharge frothy pus, blood and air, and those which have a foreign body lodged in their interior. Sinuses which extend downwards and have their openings above, sinuses in the roots of the hairs and nails, in the vital parts and the shin-bones are also difficult to cure. Fistula-in-ano with internal opening or opening in the raphe or sinuses in connection with the ischium also belong to the same class. Ulcers in persons affected with leprosy, chronic poisoning, consumption and diabetis heal with difficulty, as also ulcers which break out on ulcers.

The following diseases are not radically curable and can only be relieved: paraphymoses, stricture of the urethra, stricture of the rectum, enlarged glands in the abdomen, worms in ulcers of the nose and viscera and of persons suffering from skin diseases and diabetis, gravel, sandy urinary deposits, urinary disorders, the varieties of retention of urine called *váta kuṇḍaliká* and *ashṭhilá,* sordes on the teeth, inflammation of the gum, tubercle in throat, ulcers from use of poisonous sticks as tooth brushes, inflammation of the sockets of the teeth, erysipelas, ulcers in bones, ulcers in the lungs and suppuration in glands.[1]

Without treatment curable diseases become relievable, relievable diseases become incurable, and incurable ones prove fatal. Those diseases are called *yápya* or relievable which are kept in check by treatment, and which immediately prove fatal on discontinuance of treatment. As a tottering house can be kept standing by judiciously placing posts to support it, so a person suffering from a relievable disease can be kept alive by proper treatment.

I will now describe the incurable forms of inflammations. Ulcers having the shape of balls of flesh, ulcers with profuse discharge, ulcers with pus inside and much pain, ulcers having elevated openings like the anus of a horse, hard ulcers elevat or high like the horns of a cow and covered with soft granulations, ulcers discharging impure blood or thin slimy pus or being elevated in their centres, ulcers with depressed surface and undermined edges, ulcers covered with a network of nerves, looking like fibres of flax and having a fearful appearance, ulcers which originating from derangement of the humours discharge marrow of flesh, fat, marrow or brain substance, ulcers connected with the viscera which discharge yellow or black urine and fœces and wind, ulcers situated on the head and throat of persons with weak muscles having small sinuses or openings all over with sprouting granulations and discharging air with noise, ulcers in persons with weak muscles, discharging pus and blood and attended with indigestion and disinclination for food, cough or asthma. When the skull is injured and the brain is visible. When the symptoms of derangement of the three humours are present together with cough and difficult breathing. On this subject there are the following verses:

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[1] The diseases mentioned as incurable on the above list mean the inflammation occurring in persons suffering from these diseases and not the diseases themselves.

Ulcers discharging fat, marrow, marrow of flesh or brain are curable if caused by injuries, but are incurable if they result from derangement of the humours. When ulcers not situated on the vital parts or over veins, joints or bones assume an unhealthy character, they should be understood to be incurable. These ulcers gradually increase and affect the tissues, and like an old tree cannot be uprooted. From their firmness, extent, and affection of the tissues, they neutralize the effects of medicines applied to them, as the wicked spirits neutralize the effect of *mantras* or charms directed against them. Ulcers with qualities opposite to those described are easily curable and can be removed like a small plant without a fixed root.

A healthy ulcer is that in which there is no derangement of any of the three humours, whose lips are of brown colour and which is free from pain and discharge. An ulcer whose interior is of spotted or of variegated colour, which has no discharge and is covered with a firm crust should be known as healing or granulating. An ulcer is known to have healed when its surface is uniform and on a level with and of the colour of the skin and when it is free from granulations, swelling and pain. An ulcer which has healed may break out afresh from derangement of the humours, exercise, injury, indigestion, pleasure, anger, fear, &c.

CHAPTER XXIV.

ON THE CLASSIFICATION OF DISEASES.

There are two sorts of diseases with reference to surgical treatment, namely, one curable by surgical operations, and the other by the application of oily substances, &c. In diseases curable by operations, the application of oils, &c. is not contra-indicated, but on those curable by external applications operations should not be performed. Although this work is chiefly devoted to surgical subjects, yet all diseases will be briefly discussed in it, as all the *tantras* or branches of medicines are of equal importance. It has been before mentioned that whatever causes pain to the living principle or soul is disease. These pains originate from three sources, namely, mental, or physical, or spiritual agents as gods, demigods, &c. These three sources of pain produce seven varieties of diseases, namely, hereditary diseases from diseased semen or menses, hereditary diseases from irregularities on the part of the parents, diseases from derangement of the humours, accidental diseases from injuries, &c., diseases caused by influence of time or seasons, diseases caused by spirits, and diseases caused by the natural powers. The first class of hereditary diseases which owe their origin to diseased semen or menses are leprosy, piles, &c. They are subdivided into two classes, namely, paternal and maternal. The second class of hereditary diseases originating from irregularities on the part of the mother are lameness, blindness, deafness, dumbness, nasal voice, dwarfishness &c. They are caused either by diseased chyle or by neglect on the part of the mother to satisfy her longings during pregnancy. The diseases caused by fear and irregularities in diet and regimen are those caused by derangement of the humours. They are of two sorts, namely, bodily and mental. The former is again subdivided into two classes, namely, diseases originating from disordered humours of the *amáśaya* or stomach, and those originating in the *pakkáśaya* or the organ of digestion. All these varieties of diseases are called *adhyátmika* or constitutional.

Accidental diseases are those which come under the class of diseases caused by violence, such as a weak man fighting with a strong one, &c. They are of two sorts, namely, those caused by weapons and those by wild animals, &c. Accidental diseases are called *ádhibhautika*.

Diseases caused by the influence of the seasons are those that are caused by heat, wind, &c. They are of two sorts, namely, those caused by a regular season and those in an irregular one. The diseases caused by spiritual agencies are those that are caused by offences against spiritual guides, the curse of sages, the *mantras* of the *Artharva Veda*. The cause of diseases called *upasargaja*, that is, diseases which occur in connection with other diseases, is also included under this head. Diseases caused by spiritual agencies are divided into two classes, namely, those caused by thunder and lightning, and those by spirits of different sorts. Another division of this class is into accidental or occurring as complications in the course of other diseases.

The natural forces cause appetite, thirst, old age, death, sleep, &c. These are also of two sorts, namely, those caused in proper season, and those caused untimely. Those caused by the influence of time, notwithstanding due care of health, come under the former class, and those caused untimely from want of due care, come under the latter. These diseases come under the class *adhidaiviká* or those caused by extraneous agencies. These divisions include all varieties of diseases.

Air, bile and phlegm are the roots of all diseases as would appear from their signs or characters being seen in all diseases, from the results of experience, and the writings in the Vedas. As the entire body of material objects in the universe, made of the five elements, cannot exist without the three qualities called *satva*, *rajas* and *tamas* (or goodness, passion and darkness), so the diseases of our bodies cannot exist without the three humours air, bile and phlegm.

Diseases assume various forms owing to the different modes in which the humours, the tissues and the excretions are mixed up in particular cases, the different parts of the body in which they are deranged and the causes by which the disorders are induced. Diseases are classified according as the deranged humours affect the different constituent parts of the body, such as disorders of chyle, of blood, of flesh, of fat, of bones, of marrow, of semen, &c. The following disorders originate from diseased chyle, namely, distaste for food, disinclination for food, indigestion, pain in the limbs, fever, nausea, sense of satiety, sense of weight, diseases of the heart, jaundice, obstruction to the outlets of the body, emaciation, bad taste in the mouth, lassitude and premature wrinkling of the skin, and appearance of grey hairs, &c.

The following diseases originate from disordered blood, namely, skin diseases, erysipelas, boils, warts, black spots in the face, moles, chloasma, brown spots on the face, baldness, spleen, deep-seated or internal abscesses, abdominal tumours, leprosy, piles, tumours, menorrhagia, hœmorrhages from internal organs, and suppuration in the anus, mouth and penis. The following disorders are caused by diseased muscles, namely, swelling round the wisdom tooth, tumours, piles, inflammation of the root of the tongue, ranula, inflammation of gum, enlarged tonsils, a sort of eruption which appears in diabetes called *alaji*, painless tumour of the palate, inflammation of the lips, goitre, enlarged glands on the neck, &c.

The following disorders originate in diseased fat, namely, enlarged glands, hydrocele, bronchocele, tumours, corpulence, swelling of the lips, diabetes, excessive obesity, excessive perspiration, &c. The following diseases originate from diseased bones, namely, enlarged bone, additional teeth, pain in the bones, thickening or psoriasis of nails, &c. The following disorders originate from diseased marrow : impaired vision, fainting, delirium, sense of weight in the joints, thickening of the thighs and legs, discharge from the eyes. From diseased semen arise impotence, disinclination for sexual intercourse, calculus from semen, discharge of semen, in the urine and other diseased states of the semen. When the large intestines or seat of the fœces are diseased, there ensue disorders of the skin, costiveness or diarrhœa. When the seats of the senses are diseased, then the senses are either incapable of performing their functions or they are very sensitive. This subject is thus shortly described. The detailed causes of these diseases will be described in the descriptions of the individual diseases. Here is this verse:

The deranged humours pervade through the body, and where from their contact any tissue becomes affected, there disease is set up.

It may be here asked: have the humours, air, bile, &c. constant connection with fever and other diseases, or is their contact occasional only? If the connection were constant, then men would be constantly suffering from illness. Again from the circumstance of all diseases presenting only the characters of the humours, it may be concluded that they are the cause of all diseases, but this is not true. It may be said, fevers and other diseases do not exist without air, bile, &c., yet their connection not constant, just as thunder, lightning and rain occur in the atmosphere, and yet they are not always present in it, but occasionally arise from certain causes. The connection of the humours with diseases may also be compared to the connection of water with bubbles on its surface, which occasionally appear in it but are not constantly present. Diseases in the same way appear occasionally in connection with the humours from certain causes. Here is a verse:

The extent, number of varieties, and symptoms of all diseases will be described in detail in the *Uttara Tantra.*

CHAPTER XXV.

ON THE EIGHT VARIETIES OF SURGICAL OPERATIONS.

Incisions or cutting operations should be performed in fistula-in-ano, unripe tubercles or small tumours, piles, condyloma, foreign bodies in bones and muscles, hairy moles, tumours of the palate, enlarged tonsils, sloughing nerves, flesh or veins, suppurating glands, fistula-in-ano with many external openings, cynanche tonsillaris, chancres, proud flesh and inflamed gum over the wisdom tooth. Openings should be made in the following diseases, namely, all forms of deep-seated abscesses, small cysts and erysipelas, except those caused by derangement of all the humours, scrotal enlargements, large abscesses in the groin and axilla, the boils which form in urinary complaints, swellings, abscess of the breast, a sort of eruption on the penis called *avamanthaka*, pustules in the feet, sinuses, diseases of the throat called *vṛinda* and *ekavṛinda*, eruptions on the penis called *pushkariká* and *alají* (a sort of pustular eruption in urinary disease most of the minor diseases, boils in the palate and gum, absce of the tonsils, swelling like a plum in the throat called *giláyu*, and other diseases which suppurate or are formed of fat. The bladder is opened for stones only.

Scarifications should be made in the four forms of *rohiṇí* (inflammation of the throat), in leucoderma, ranula, inflammation of the gums from deranged fat, tubercles, lachrymal fistula, inflammation of the epiglottis, piles, circular patches of psoriasis, small as well as elevated granulations or proud flesh. Perforations are made for opening many veins, hydroceles and ascites. Probing should be performed in sinuses, fistula with foreign bodies or those extending sideways. Extraction should be performed in the three forms of gravel, calculus, tartar on the teeth and wax in the ears, foreign bodies, malpresentation of the fœtus, and impacted fœces in the rectum.

Discharges should be let out in the five forms of deep-seated abscesses, but not in that caused by derangement of all the humours, in skin diseases, in painful swellings caused by air and confined to one place, diseases of the lobules of the ear, elephantiasis, poisoned blood, tumours, erysipelas, tubercles or small tumours and sores on the penis caused by deranged air, bile and phlegm; diseases of the breast, large abscesses in the groin and axilla, inflammation of dental periosteum, small tumour in pharynx with granulated surface, tumour in throat, carious teeth, inflammation of gums, scurvy, gum-boils, leprosy, inflammation of lips caused by deranged phlegm, and many minor diseases. Sutures should be applied in abscesses caused by deranged fat, after they are opened and well cleared, in wounds and especially in wounds of moveable joints. Sutures should not be applied in sores caused by caustics, fire, poisons, and in sinuses through which wind passes out or in which there is blood or a foreign body. These should be purified or made healthy. Dust, hairs, nails, loose bones, &c., when found in a sore, should be extracted before the application of sutures, for these give rise to much suppuration and various sorts of pain; hence these should be first removed. The lips of the wound or sore should then be raised and placed in proper apposition and the sutures applied. The ligatures should be made of fine thread or the fibres of the bark of *asmantaka* (*Cæsalpinia digynia*), or threads made of hemp or flax, or of the fibres of which bow-strings are made, or hairs, or the fibres of *Sanseviera zeylanica* or *Tinospora cordifolia*. The sutures should be slowly applied. There are four sorts of sutures, namely, *vellitaka* or winding; *gophoṇiká* like a sling, *tunnasebaní* continued suture, and *ṛijugranthi* or interrupted suture. These forms of sutures may be applied, according as they are suitable to particular parts of the body.

In parts of the body covered with little flesh and over joints, a round needle two fingers in length should be used. In fleshy parts, a three-sided needle, three fingers in length should be used. In the vital parts, abdomen and scrotum a needle curved like a bow should be used. These three varieties of needles should have fine points and should be properly made. The diameters of these needles should be of the size of the stalks of the flowers of *málatí* (*Aganosma cargophyllata*). The needles should not be introduced either too far from, or too close to the edges of the wound. In the former case the lips of the wound will become painful, in the latter they will give way. The stitched part should then be covered with cotton or linen and a powder composed of the following ingredients, namely, *priyangu* (fruit of *Aglaia Roxburgii*), *anjana* (sulphuret of lead), liquorice and *lodhra* (bark of *Symplocus racemosa*), should be applied all round it, or the powder of the fruit of *śallakí* (*Boswellia serrata*), or the ashes of burnt linen may be applied. The sore should then be properly bandaged, and the patient should be explained the hygenic rules he will have to observe. The eight varieties of surgical operations have been thus briefly described. In the chapters on treatment they will be treated of in detail.

There are four sorts of dangers in these eight forms of operations, namely, making the openings insufficient, excessive, or in improper directions, and wounding one's self. If from ignoranc avarice, abuse by patient, fear, loss of sense, or any other causes, the physician performs an operation badly, he causes innumerable diseases or complications. The patient who wishes to live should avoid from a distance, like a virulent poison or fire, the physician who is known frequently and improperly to use caustics, cutting instruments, fire or medicines. Such a physician is likely to cause injury to the vital parts, joints, veins, nerves or bones. The patient, who is treated by an ignorant physician, loses his life either soon or after some delay.

In wounds of the five classes of vital[1] parts the following symptoms occur, namely, wandering, delirium, prostration, loss of consciousness, tossing of limbs and increased heat, relaxation of the limbs or tendency to fall, swooning, passage of air upwards, various sorts of severe pains caused by air, discharge of blood having the appearance of water in which meat has been washed, and the abolition of the functions of the organs of sense.

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[1] Vital parts. It is said there are 107 vital parts situated in the flesh, vessels, nerves, bones and joints. These are divided into five classes according to their seats.

In division or puncture of veins there is copious discharge of blood of the colour of the insect called *indragopa* (cochineal), as also discharge of air from the wound. Various diseases also follow. When nerves and tendons are cut, there is crookedness, lassitude, inability to move the limbs and severe pain. The ulcer takes a long time to heal. In wounds of joints, whether moveable or immoveable, there is much swelling, severe pain, debility, pain and swelling in the joints of the body and inability to move the joint. When bones are wounded, there is severe pain day and night, the patient does not get relief in any position, there is thirst, disinclination to move the limbs, swelling and pain. When the vital parts, situated in any of the above mentioned structures, are injured, then in addition to the symptoms of injury to the vital parts there are also the symptoms of injury of the tissue in which they are situated. When flesh is wounded, there is loss of sensation and yellowish white colour of the body. The physician who wounds himself in performing operations, should be avoided by all patients who wish to live. The evils of making an incision in an oblique direction have been before described. Surgical operations therefore should be performed in such a manner as to avoid the evils above mentioned.

The sick man fears his mother, father, children and friends, but trusts the physician and does not fear to entrust his life to his care. Hence the physician should treat his patient as his own child. Sometimes one form of treatment, sometimes two, three or four modes of treatment may be required for the cure of a patient. The physician who treats his patients with their welfare in his heart, attains virtue, wealth and fame, is liked by good men and attains heaven.

CHAPTER XXVI.

On foreign bodies impacted or hidden within the body.

The word *śalya* is derived from the root *śal* or *śval* which means to move quickly. There are two sorts of *śalyas*, namely, those originating in the body and those coming in contact with it accidently. *S'alya* affects the entire system or causes disease in it, hence, this subject is explained in this book and hence its name is *śalya śástra ;* hairs, nails, the tissues, food, excrements, and the humours are seen to be *śalyas* originating in the body. All *śalyas,* not originating in the body, are classed as accidental and cause pain. The principal accidental *śalyas* are made of iron, bamboos, trees, grasses, horns and bones. Of these the iron *śalyas* or arrows are most important, from their being made for the purpose of destroying life, from the impossibility of resisting them even with iron, from their pointed ends, and from their being shot from a distance. In this chapter arrows will be chiefly dwelt upon.

There are two sorts of arrows, namely, plain and with ears. They are shaped like various sorts of leaves, flowers and fruits or like the mouths of serpents, deer, birds, &c. All arrows, whether small or large, have five sorts of motion, namely, upwards, downwards, backwards, forwards and sideways. Arrows, from loss of velocity or obstruction to their course, may stick to the skin and arteries, external orifices, bones, canals of bones, muscles or some other part of the body. I will now describe the symptoms caused by them when thus impacted in the parts mentioned above. Please hear: These symptoms are of two sorts, general and special. The general symptoms are a sore or opening with high soft granulations of livid colour and elevated like bubbles, swelling, pain and frequent discharge of blood.

The special symptoms of a foreign body impacted in the skin are discolouration and a hard extensive swelling. When a foreign body is lodged in the fat of flesh, there is much swelling, the opening is closed, pressure cannot be borne and burning pain and suppuration occur.

When it is impacted in muscle, all the symptoms of lodgement in fat of muscle are present with the exception of burning pain and swelling. When a foreign body is lodged in a vein, there is distension, pain and swelling in the vein. When it is lodged in a nerve, there is distension of the network of nerves, inflammation and severe pain. When lodged in the channel or vessels of the body called *srota*, there is obstruction to the performance of their functions. When lodged in the arteries, there is discharge of frothy blood, and air issues out with noise, there is also pain in the limbs, thirst and frequent spitting. When lodged in the bones, there are various sorts of pain, as also swelling. When lodged in the canals of bones, there is pain and sense of fulness in the bones and strong horripilation. In joints the symptoms are the same as in bones, with the addition of loss of motion in the joint. When a foreign body is lodged in the viscera, there is borborigma, tympanites and discharge of urine, fœces or food from the wound. When lodged in a vital part, the symptoms resemble those caused by injury to them. These symptoms are not clearly seen in the case of fine foreign bodies. A foreign body, whether large or small, penetrating in the direction of the fibres of the tissues in a healthy person may be covered with granulations and the opening may be closed. If the foreign body be lodged in the air passages, veins, skin, muscles or the canals of bones and the opening be healed, it may again cause inflammation, if disturbed or moved from its place by derangement of the humours, exercise or injury.

When a foreign body lodged in the skin cannot be found or felt, the part should be fomented and rubbed without, then a paste made of earth, *máshakaláya* (*Phaseolus Roxburghii*), barley, wheat and cow-dung should be applied to it. The part where pain or inflammation occurs after this, is the spot in which the foreign body is concealed.

bodies from the eyes and other organs are flow of tears, sneezing, eructations, cough, micturition and the passage of fœces and wind. When a foreign body is firmly fixed, the part should be burnt. When suppuration occurs, it will be discharged with the flow of blood and pus, or fall out from its own weight. When the part suppurates but does not open of itself, it should be punctured or incised. If the foreign body does not come out after an opening has formed, it should be pressed out by the fingers or other articles by which pressure can be applied.

If there is a small foreign body in the eye, it may be extracted by directing a stream of water into it, or by blowing into it, or the foreign body may be drawn out by passing a hair or bit of cloth or the finger over it. Any dry particle of food, entering the air passage, may be thrown out by deep expiration, coughing or blowing. Articles of food sticking in the gullet may be thrown out by vomiting, kneading with fingers, etc. Foreign bodies in the *pakváśaya* or organ of digestion are expelled by purgatives. Sloughs or extraneous matters in ulcers, caused by deranged humours, should be washed out. In retention o wind, urine, fœces and fœtus, injections and manual operati should be used. For drawing out air, water, poisoned blo or bad milk, suction or the application of horns should be had recourse to.

An arrow-head placed in the direction of the fibres of the tissues, not firmly impacted, without ears and with a large opening in the skin, can be drawn out by a loadstone. Many a dart of sorrow lodged in the heart can be removed by objects of pleasure. All foreign bodies, whether large or small, may be extracted in two ways, namely, from the direction in which they have entered or from the opposite direction. In the former case, they are drawn out through the opening of entrance, in the latter from the opposite direction. When a foreign body is lodged with its extremity directed upwards, it should be cut down upon and extracted. But when a foreign body is so impacted in the sides, breast, axilla, groin, and the intercostal spaces, endeavours should be made, whenever practicable, to extract the foreign body by the hands only, that is, without cutting down upon them. Foreign bodies, which have not their points directed upwards, should also be cut down upon and extracted. If they cannot be readily extracted, another incision may be made. When a oreign body cannot be extracted by the hand, blunt or sharp instruments should be used for drawing them out.

If the patient faints during the operation, cold water should be sprinkled on his face, his vital parts should be preserved or taken care of, and he should frequently be encouraged with hopeful words. After the extraction of the foreign body and the stoppage of bleeding, the part, if suited for fomentation, should be fomented with hot applications, clarified butter, etc., or if it is fit for burning, it should be cauterized and honey and clarified butter applied to it. The part should then be bandaged and directions given for the conduct of the patient.

When a foreign body is impacted in a vein or nerve, it should be first loosened by a probe or other instrument and then ex- sted. If the foreign body is covered over with a swelling thad it, the swollen parts should be pressed aside and then object removed. Small or fragile foreign bodies should be tied with grass, etc., and then drawn out. When a foreign body is impacted over the heart, the patient should be cooled with cold water, and the foreign body extracted in the most feasible way. When a foreign body cannot be readily drawn out, owing to some obstruction, it should be wrenched out by force. If the foreign body is impacted in the canal or the substance of a bone, then the limb or the part should be pressed by the feet and the foreign body grasped by forceps and extracted. If it cannot be extracted in this way, then the patient or the part should be firmly held by some strong people, the shaft of the row should be bent by pincers and one end of a bow string tied it, the other end being attached to the curb ring in a horse's mouth. The animal should then be made to raise its head, so that the foreign body may be drawn out in the act of doing so.

Or a firm branch of a tree may be bent, and the string tied to it, so that the foreign body may be drawn out when the branch is let go.

If an arrow is fixed in a bone with a portion projecting out of it, it may be shaken by a piece of pebble, stone, or a hammer and extracted. In case of arrows with barbs, the barbs should be bent down by instruments, and the foreign body extracted when there is no obstacle to it in the part. A foreign body, made of lac, sticking in the throat may be extracted by the following device. A heated probe or sound should be introduced into the throat, when the foreign body will adhere to it. The sound should now be cooled by sprinkling water on it and the foreign body drawn out steadily. In case of foreign bodies, made of other things besides lac, the sound may be smeared with lac or wax and the foreign body extracted as above described. When a piece of bone or other article sticks in the throat in a transverse direction, a ball of hair should be firmly tied to a thread and swallowed, the patient should then drink so as to fill his stomach up to his throat and then vomit. During the act of vomiting when it will appear that the foreign body is entangled in the ball of hair, the thread should be pulled so as to bring out the ball and the foreign body with it. Or the foreign body may be extracted by the soft brush end of the sticks used for cleaning teeth. If the interior of the gullet is wounded, then honey and clarified butter should be licked, or a mixture of the powder of the three myrobalms with honey and sugar may be given. Another method of extracting foreign bodies from the throat is as follows; the patient should fill his stomach with water and sit with his head hanging down. His neck should then be pressed or he should be made to make a noise or to vomit. Another measure is to bury the patient up to his face in a heap of ashes. When a morsel of food sticks in the throat a blow should be fearlessly struck with the fist on the shoulder of the patient without his knowledge, or he may be made to drink wine, oily fluids or water.

When the neck is compressed by the arms, ropes or branches of creepers, the air is deranged, the deranged air irritates the phlegm and obstructs all the outer passages and thus causes dribbling of saliva and foaming at the mouth and loss of consciousness. In such cases, the patient should be rubbed with oil and fomented, he should be given pungent errhines and such juices as relieve deranged air.

On this subject there are the following verses:

The sensible physician will extract different sorts of foreign bodies by different instruments, after taking into consideration their shape and position. Arrows with barbs and other foreign bodies which are extracted with difficulty should be taken out by the physician by the means above indicated, but if he fails to do so by these means, a skillful physician should take them out by the aid of surgical instruments. An unextracted foreign body causes swelling, suppuration and severe pain and sometimes death, hence it should be carefully taken out.

CHAPTER XXVIII.

ON THE FAVOURABLE AND UNFAVOURABLE SYMPTOMS OF ULCERS.

As the appearance of fruits, fire and rain may be predicted by the sight of flowers, smoke and clouds, so death may be predicted by the presence of certain signs called *arishṭa*. These symptoms are sometimes overlooked by ignorant physicians from their minute, dubious or transitory characters, but they always appear before death, and death surely follows their appearance. It may be prevented, however, by pure brahmins, or persons proficient in meditation, in the practice of religious austerities, or in the knowledge of medicines which prolong life. As the diseases caused by the twenty-eight asterisms in the path of the moon appear in their proper time, so do the premonitory symptoms of death appear in their proper stages. The physician who treats a patient whose case is thus necessarily fatal, does not attain success; hence these premonitory signs of death should be carefully noted by the sensible practitioner.

Briefly speaking, changes from the healthy state in the colour, odour, and discharge of a part are the symptoms of ripening or suppuration in inflammation.

Acrid, pungent and fleshy smells are caused respectively by air, bile and phlegm. Bloody smell is produced by blood and mixed smell by all the humours together. The natural or healthy smell resembles that of fried rice, linseed, or oil with a slight smell of flesh. All other smells are caused by deviations from the healthy standard.

The ulcers of dying persons have odours like wine, *aguru* (wood of *Aquilaria agallocha*), clarified butter, flowers in general, sandal wood, or the flower of *Michelia Champaca*, or they resemble heavenly smells. Smells resembling that of dogs, horses, rats, cranes, putrid flesh, bugs, mice and earth are th unfavourable. Ulcers from deranged bile having the colour *dhyáma* (*Artemesia vulgaris*), *kumkuma* (*Crocus sativus*), o *kankushṭa* (a medicinal earth of yellow colour), and having no burning or drying sensation in them, should be avoided by the physician. Ulcers, caused by phlegm having a firm white and oily appearance and attended with itching, should be avoided, if they have pain and burning sensation in them. Ulcers caused by deranged air, with scanty discharge and black colour, affecting the vital parts and unattended with the slightest local pain should be avoided. The following varieties of ulcers should also be avoided by the wise physician who wishes to preserve his good name: ulcers eating into the flesh or undermining the skin, with burning pain, affecting the skin and flesh, and discharging air with noise; ulcers seated on the vital parts and very painful; ulcers cold externally with severe burning in their interior; ulcers cold internally with severe burning on their surface; ulcers having the appearance of a dart, a lance, a flag, a car, a horse, an elephant, a cow, an ox or a temple; ulcers having the appearance of being sprinkled over with lime, though no lime has been applied to them; ulcers in persons with wasting of vital powers and flesh with consumption, difficulty of breathing, cough, and disinclination for food; ulcers with profuse flow of blood and pus, and situated in the vital parts; and lastly, ulcers which, though treated adequately, do not yet get well.

CHAPTER XXIX.

ON THE FAVOURABLE AND UNFAVOURABLE SIGNS DERIVED FROM THE MESSENGER, BIRDS, DREAMS, ETC.

The appearance, address, dress and action of the messenger sent to call a physician, the star, hour, and lunar day on which he is called, the birds seen at the time, the residence, speech, and mental and bodily actions of the physician, all afford omens from which a favourable or unfavourable prognosis may be formed of the patient's illness.

A messenger who is an atheist, or who is in one of the four stages of a brahmin's life is favourable to the patient.

The following are the unfavourable signs in messengers:

An impotent man, or one with many wives, a person having many engagements, a slanderer, one who rides on an ass or a camel, or a car drawn by these animals when going to call a physician; a messenger carrying a rope or stick or other weapon, wearing clothes of any other colour besides white, or putting them in a contrary direction, or having wet, torn, dirty or worn out clothes; one having more or less limbs or parts of the body, or some deformity; one having an excited or furious appearance and one who is rough and unkind in speech; a messenger who is splitting pieces of wood or grass, who is constantly touching his nose or breast or the end of his garment, or the loose threads near it, or his little finger, his hair or nails, who puts his hands on the orifices of his body, on his heart, cheek, head or sides, who carries in his hand a skull bone, a stone, a bone, or ashes, or brain, or charcoal, who scratches the ground or is throwing something on it or breaking a lump of earth, who smears his body with oil or clay or wears a garland of red flowers; who carries a ripe or unsubstantial fruit or some such article, who puts his nails inside other nails or keeps his hands on his feet, who carries his shoes in his hand or is inflicted with some bodily deformity or disease; a person addicted to drink and debauchery or having asthma or deformed eyes or apt to shed tears; or a person who stands on one leg on the right side of the physician, with his hands joined together.

Messengers should not approach the physician when he is seated with his face towards the south, or in an unclean place, or when he is cooking after lighting a fire, or is about to do any hard work, when he is lying on the ground naked, or is in an unclean state from attending to a call of nature, when his hairs are loose or he is perspiring or is in a state of agitation.

It is not good for a messenger to approach a physician when he is engaged in performing any ceremonies for his ancestors or his gods, or when he has witnessed any natural portent, at midday, at midnight, or during the morning and evening twilights. He should not be called also on the following lunar asterisms, namely *Kṛittiká, Árdrá, Áśleshá, Maghá, Múla, Púrvaphálguní, Púrváshádá, Púrvabhádrapada,* or *Bharaṇi,* and on the following days of the moon, namely, the fourth, sixth, and the ninth, and the day of the new moon.

In the case of a disease caused by deranged bile it is not good for a messenger to go to a physician, while he is hot and perspiring, in the middle of the day or from near a fire, but these omens may be good for a disease caused by deranged phlegm. From this, the proper time for calling on a physician for a disease caused by air should be inferred. The proper time for calling on a physician for a patient suffering from hæmorrhage, diarrhœa and urinary disorders, is after the cessation of a shower of rain. The learned man will infer from these considerations the proper time for sending a messenger in the case of other diseases.

A messenger who wears white clothes, is clean in his person, of fair or brown complexion, of pleasing appearance, and of the same caste and lineage with the patient, is said to be serviceable. A messenger who comes in a vehicle drawn by oxen, who is contented, and whose movements indicate good will, who is sensible and acquainted with the rules of time, is independent, rich and adorned with ornaments, is said to be serviceable. That messenger is serviceable who calls on the physician at a time when he is clean and in good health, is seated with his face towards the East, on an even and clean place. It is a favourable sign, if the messenger, when starting on his journey, sees any meat, a waterpot, an umbrella, a brahmin, an elephant, a cow, a bull, or any white thing. The sight of the following by the messenger is also favourable, namely, a female with her children, a cow with calf, a girl adorned with ornaments, fishes, unripe fruits, a sort of cake called *svastika*, sweetmeats, tyre, a gold cup for grains, jewels, a good-tempered king, a burning fire, a horse, a goose, a blue jay, or a peacock. The sound of the recitation of the Vedas, of a drum, of thunder, of a conch shell, or a flute, the roaring of a lion, cow, bull, the neighing of a horse or elephant, the cackling of geese, or the screeching of an owl to the left of the person are also auspicious. The sight of an uninjured tree with milky juice adorned with leaves, flowers and fruits, and the sight of birds or other animals in the sky, on the tops of houses, arch of a gateway, or place of sacrificial fire, etc., are also good omens. If the messenger is addressed from behind with sweet words from a quiet direction, or if he sees birds on his left and right, then he will succeed in his object.

The following sights, are detrimental to success. A dead tree, a tree the leaves of which have been burnt by lightning, a tree with twining plants winding round it or having thorns on it, stones, ashes, bones, filth, husk of rice, charcoal, dust, a tombstone and an ant-hill. Any body addressing the messenger from an uneven place in a loud harsh voice, or from before a place on fire, is also inauspicious.

Birds with masculine names on the left side and those with feminine names on the right side are favourable; so are dogs and jackals passing from the right to the left. The passage of a mungoose or blue jay from the left is auspicious. The passage of a hare, a serpent, an owl, or the water-fowl called *chásha*, is unfavourable in both directions. The sight and sound of a guana or lizard are both injurious. All these sights, inauspicious to a messenger, are equally so to all men. A vessel or pot containing seeds of *Dolichos uniflorus* (*kulattha*), sesamum, cotton, husk of rice, ashes, stones, charcoal, oil, clay, red mustard seed, or any sort of spirituous liquors except the one called *prasanná*, are inauspicious. Coming in contact on the road with a corpse, dry wood of the *palás* tree (*Butea frondosa*), or a poor or blind man, or an enemy lying on the ground, are things not to be desired. Cold and fragrant air blowing mildly from behind is favourable. Hot foul air roughly blowing against the face is unfavourable.

In enlarged glands, tumours, etc., cutting sounds are favourable. In deep-seated abscesses, ascites, abdominal tumours, etc., puncturing sounds are auspicious. In hæmorrhage, diarrhœa, etc. closing sounds are favourable. In this way the effect of different varieties of sound should be inferred in different diseases. The following sounds are injurious, if they occur at the time when the physician is starting. The cries of the cursed, or suffering, sound of vomiting, and passing wind or fœces, the noise of asses and camels, the sound of sneezing, of forbidding to go, of the breaking or falling of a thing, or that of killing a person. It is a bad sign also, if the physician's mind has evil thoughts at the time of his departure. These favourable and unfavourable signs should be observed also at the time of entering the house of the patient, but they are not to be taken into account after the door of the house has once been entered.

It is not desirable to see any of the following, either at the time of departure or entrance into the patient's house, namely, hair, ashes, bones, wood, stones, husk of rice, cotton, thorns, a cot with the legs upwards, a drunkard, fat, oil, sesamum seed, grasses, impotent men, one with brown spots on the face or a fracture, a nude person, one with shaven head or black clothes.

The sight of the removal of vessels containing sweepings, of digging or turning up the ground, or of the breaking, falling or total loss of any article is injurious. If the physician sits exhausted and fatigued, or the patient remains with his face bent down, if the patient while being addressed by the physician contracts his limbs or his bedding, rubs or shakes his hands, back or head, or if he takes the hand of the physician and keeps it on his breast or head, or speaks to the physician while rubbing his body, and having his face directed upwards, then his disease will not get well. The patient in whose house the physician is not respected, does not get well; where he is worshipped, there success results. The omens from messengers, etc. surely produce good or evil results to the patient, hence they should be carefully noted by the physician.

I will now describe the dreams that bespeak recovery or death. He who in his dreams sees himself or his friends ill, or dreams that he is going towards the south, riding on an elephant, a beast of prey, an ass, a boar, or a buffaloe, with his body anointed with oil, will get sick if he is well, and die if he is ill.

The following dreams also have the same effect: being tied and carried towards the south by a black female, with loose hair, and red cloth, while she is laughing and dancing; being carried towards the south by people who work in funeral places; being embraced by goblins or travelling mendicants; the head being smelt by animals, having ferocious appearances; drinking oil or honey or falling in a mire; dancing or laughing after smearing mud on the body; holding a garland of red flowers on the head in a nude state of body; dreaming of a bamboo, *nala* (*Phragmitis karka*) or *tála* tree (*Borassus flabelliformis*) growing on his brains, of being devoured by fishes, falling from the top of a mountain, and of living in misery and darkness; being carried away by a stream, or having the head shaved; being overpowered or killed by crows, etc.; seeing the fall of stars or the extinguishing of lights or the loss of sight; seeing the gods or feeling earthquakes; having motions or vomitings or loosing teeth; getting on a *sálmalí* tree (*Bombax malabaricum*), *kimśuka* tree (*Butea frondosa*), *páribhadraka* tree (*Erythrina Indica*) or a flowering *kovidára* tree (*Bauhinia variegata*), mounting on a sacrificial post, an ant-hill or on a funeral pile; obtaining cotton on oil, oil-cake, iron, salt, or sesamum seed, eating cooked rice or drinking wine. Dreams of all the above mentioned things by healthy persons lead to sickness, and by sick persons to death.

If a man dreams according to his own nature and forgets his dream, or he dreams of objects thought of during the day, then no mischief will happen.

The following dreams are fatal: a fever patient dreaming of friendship with a dog, a consumptive patient of friendship with a monkey, a lunatic with a demon, an epileptic with a goblin; a patient with urinary disorder or diarrhœa dreaming of drinking water, or one with skin disease of drinking clarified butter; a patient with an abdominal tumour dreaming of a tree growing from his viscera, or one with headache of a tree growing on his head, eating cakes in vomiting, dilution of the phlegm in asthma and thirst, eating turmeric in jaundice, or drinking blood in hæmorrhages. If a person dreams such unfavorable dreams, he should on rising in the morning carefully make presents of the pulse of (*Phaseolus Roxburghii*) sesamum seeds, iron and gold to brahmins, he should repeat auspicious incantations, and the sacred verse in three lines called *gáyatri*. If a person dreams of evil things in the early part of the night, he should sleep again after thinking of good things and praying to the gods and to paṇḍitas learned in the vedas. After bad dreams a person should not see any person, but retire to a temple, and there for three nights worship brahmins daily for deliverance from their evil effects.

I will now describe favourable dreams. Dreaming of gods, cows, bulls, living friends, kings, birds, lighted fires, brahmins or pure water, leads to good and to recovery from illness. Dreaming of meat, fish, garlands, white clothes and fruits leads to acquisition of wealth and recovery from illness. Dreaming of ascending large palaces, trees with fruits, elephants or mountains, leads to profit or cure from sickness. Crossing rivers with muddy water or a troubled sea leads to good or to recovery from illness. One who dreams of being bitten by a serpent, a leech or a large black bee called *bhramara* will get well or acquire riches. The patient, who has such good dreams, attains long life, and the physician should treat him.

CHAPTER XXX.

ON THE SIGNS OF IMPENDING DEATH, DERIVED FROM THE FIVE SENSES.

Now hear from me in detail the signs of impending death met with from changes in the body and in the disposition of the patient. He who hears various noises without any objects to produce them, he who hears the noise of the sea, a town or a thunder, and imagines that they are caused by some other objects, he who confounds the noise of a village with that of the wilderness and *vice versâ*, he who is delighted to hear the sound of his enemy, and is angry at the voice of his friend or does not hear him, is said to have come near his end, he who feels heat as cold, or cold as heat, he who feels burning heat in his body although his skin is corrugated from cold, or he who trembles from cold while his body is hot, he who does not feel pain when he is struck, or when a limb is cut, he who imagines as if his body was sprinkled over with dust, he whose body suddenly changes its colour or shews rows of lines on it, he who is infested by blue flies, even after anointing his body with oil and bathing, or from whose body a fragrant smell is suddenly emitted, should be known to be near his end.

He who perceives the tastes of articles contrary to their true nature, and in whom suitable articles of diet with different tastes after ingestion cause only increase of the humours, or he whose humours and digestive fire are moderated by improper articles of diet or who does not perceive any of the tastes, may be considered as dead; he who thinks good odours as bad and bad ones as good, or does not perceive any odour at all, may be known to be near his end. He who feels heat and cold, or perceives the different points of the compass, and the various divisions of time contrary to their true character; he who sees burning stars or moonshine during the day, and a fiery sun during the night; he who sees the rainbow or lightning or dark clouds with lightning in a clear sky; he who sees the sky filled with horses and cars that travel through the atmosphere; he who sees the god of air in his bodily shape in the atmosphere; he who sees the earth covered with smoke, frost or cloth; he who sees the world on fire or under a deluge, or sees it painted as standing on eight legs; he who does not see the goddess *Arundhati* with her stars or the group of constellation called the *ákáśa ganga* or the sky Ganges, may be said to have come to his end. He who cannot see his shadow in the moonlight or in hot water, or who sees a shadow with a limb wanting or some deformity or the shadow of other beings such as a dog, crow, heron, vulture, goblins, demigods called *yaksha*, demons, female imps, snakes, or the elements deformed in some way, or he who sees a smokeless fire like the neck of a peacock, will die if he is sick, and will fall ill if he is healthy.

CHAPTER XXXI.

ON THE PREMONITORY SIGNS OF DEATH LEARNT FROM SHADOWS, ETC.

He who is followed by brown, red, blue or a yellow coloured shadow is surely near the end of his life. He who suddenly loses his shame, beauty, strength, energy, memory and the lustre of his body, or he who, not naturally having them, suddenly gains them is near the end of his life. He whose lower lip hangs down, whose upper lip is turned up, or whose both lips are of the colour of the fruit of the *jambu* tree (*Enginea jambolana*), is in danger of his life. He whose teeth are of reddish or brown colour and are falling, or whose teeth are of black colour, may be said to be near his end. He whose tongue is black, insensible, swollen, rough or smeared with phlegm, will soon give up his life. He whose nose is curved, fissured, dry, or broken will not live. He whose eyes become contracted or unequal, insensible or red, hang down or water continuously, has surely no life in him. He whose hairs on the head are separated, leaving a distinct line in the middle, he whose eyebrows are contracted or expanded, and he who plucks his eye-lashes, will soon go to death's place. He who cannot swallow a morsel of food in his mouth, cannot support his head, stares in one direction, and is insensible, will soon lose his life. He who often faints when made to sit up, whether strong or weak, should be avoided by the sensible physician. The man who always lies on his back and contracts his feet or keeps them extended will not live. He whose hands and feet are cold and breathing is difficult, who suffers from orthopnœa or breathes with his mouth open, will die and should be avoided by a sensible physician.

He who constantly sleeps or does not sleep at all, or who faints on attempting to speak, should be avoided by the knowing physician. He who licks his lower lip, brings up eructations, and converses with the spirits of the dead, may be said to be dead. The man who though not poisoned passes blood through the pores of his skin soon loses his life. If an abdominal swelling caused by deranged air rises up to the heart and causes pain and dislike for food, then the patient will surely die. Œdema of the feet in men produced without any other disease in the part, as also œdema of the face and private parts in women, are fatal. If a patient suffering from cough or asthma gets diarrhoea, fever, hiccup, vomiting and œdema of the penis and testicles he should be avoided.

Excessive burning heat and perspiration, hiccup and difficulty of breathing, will surely kill even a powerful man. He whose tongue becomes black, and whose left eye is sunk, and whose mouth emits an offensive smell, should be avoided.

He whose tears fill his mouth, whose feet perspire much, and whose eyes are flurried, and he whose body becomes suddenly very light or very heavy, may be known to have gone to Pluto's region. He who vomits matters smelling like mire, fish, fat oil, clarified butter, or having a sweet smell, will go to death's house. He who is infested with lice up to his forehead, whose morsel of food presented to a crow is not eaten by it, and who loses his sexual powers, will die. He who suffers from fever, diarrhoea and dropsy, and whose strength and flesh are very weak, cannot be saved by treatment. When a weak person's appetite and thirst is not appeased by agreeable, sweet and wholesome food and drink, his death is near at hand. Severe dysentery, headache, severe pain in the bowels, thirst and weakness occurring together are fatal.

Men die from their actions in a former life, from improper treatment, and the uncertainty of human life. When life is about to depart, spirits, ghosts, infernal imps and demons approach the dying, and from their desire to kill, prevent the action of medicines, hence no treatment is useful in persons whose lives are at an end.

CHAPTER XXXII.

ON ALTERATIONS IN DIFFERENT PARTS OF THE BODY AND OTHER SYMPTOMS INDICATING APPROACHING DEATH.

When any part of the body changes its usual characters, it indicates death; thus if a part naturally white becomes black, or a black part becomes white, or a red part assumes any other colour; if a part which is naturally firm becomes soft, or one that is soft becomes hard, if a moveable part becomes immoveable or *vice versâ,* if an extended part becomes contracted, or a contracted one extended, if a long part becomes short, or a short one becomes long, if an erect part hangs down, or a hanging part cannot be brought up; or if any part of the body suddenly becomes cold, hot, oily, dry, discoloured or enervated, it would be said that the part has changed its natural character.

Any part of the body hanging down, or being uplifted, or turned aside, or fallen, or separated, or turned out, or drawn inside, or becoming light, or heavy, is also a change in its nature.

The following changes are also fatal signs: the sudden appearance of red patches of the colour of coral on the body, of veins in the forehead, or of pimples on the nose; perspiration on the forehead in the morning, watering of the eyes without any eye-disease, the appearance of a dust, like powdered cowdung, on the head, or the perching of pigeons or herons on the head; the increase of fœces and urine in one who eats nothing, or their disappearance in one who takes his meals, pain in the base of the breasts, region of the heart and the chest, the appearance of dropsy in the middle of the body while the two ends are atrophied, or dropsy in the extremities with emaciation of the trunk, or dropsy in one lateral half of the body; wasting of a limb or of one side of the body, loss, weakness, disorder, or change of the voice, the appearance of discolourations, like faded flowers, on the teeth, mouth, nails and body.

The following cases are also fatal:—the patient whose sputum, fœces, and semen sink in water; he who sees various deformed appearances in his field of vision; he whose hair appears as if anointed with oil; the weak man suffering from distaste for food and diarrhœa; the patient suffering from cough, having much thirst; the feeble man suffering from vomiting and disinclination for food; the patient who vomits matters mixed with froth, pus and blood, who has lost his voice, and is suffering from severe pain in the stomach; the weak patient who is suffering from œdema of the hands, feet and face, and distaste for food, whose instep, shoulders, hands and feet are relaxed and who has got fever and cough; the patient who after breakfasting in the morning, vomits undigested food in the afternoon. The patient who, while suffering from cough and fever, gets diarrhœa, soon dies of difficulty of breathing. He who, crying like a goat, falls to the ground with his testicles hanging down, his penis paralysed, his neck bent and urine suppressed, will die. A patient with weak or dry heart and clammy body, breaking clods of earth wit other clods, or wood with wood, or tearing grasses will not liv, He who bites his lower lip or licks his upper lip, or tears hair or his ears; as also he who hates gods, brahmans, spiri guides, friends and physicians, will die. When a planet goes crooked direction, and having arrived at a bad place oppresses star of one's birth, or when one's zodiacal sign of nativity is ov turned by the planet Saturn or a meteor, the case will prove fatal.

If any bad signs appear in connection with the house, door, bed, sitting-place, conveyance, gems, jewels or other paraphernalia, it indicates that the man will not live. If a weak and emaciated patient's illness continues to increase in spite of treatment, then it is a sign of death. He whose severe illness suddenly disappears or he who derives no benefit from the food he takes, will die.

The physician who can properly understand these symptoms of approaching death will be successful when examined by the king in the subject of the prognosis of diseases.

CHAPTER XXXIII.

ON INCURABLE DISEASES.

Now, my son, hear from me with attention the diseases which prove fatal from want of supporting treatment, and the complications which render them so. Nervous diseases caused by deranged air, urinary disorders, certain skin-diseases, piles, fistula-in-ano, calculus in the bladder, ascites and malpresentations of the fœtus in labour are eight diseases which naturally are serious and difficult to cure. When these diseases are attended by the following complications, namely, weakness, emaciation, difficult breathing, thirst, wasting, vomiting, fever, fainting, diarrhœa, and hiccup, the patient should be given up by the physician who wishes to achieve success.

Nervous diseases caused by deranged air, prove fatal when the following complications occur, namely, swelling, insensibility, fracture, shivering, tympanitis and pain. Urinary disorders prove fatal when the usual complications occur, and especially when the secretion of urine is very copious, or the patient is infested with deep-seated boils. In the skin diseases included under the class called *kushṭha,* ulceration and copious discharge, congested eyes and loss of voice, prove fatal when these symptoms cannot be remedied by the five modes of treatment included under the name of *pancha karma,* namely, vomiting, purging, enemata, errhines and injections into the bladder. Piles prove fatal when complicated with thirst, disinclination for food, abdominal pain, copious discharge of blood, anasarca, and diarrhœa. The fistula-in-ano from which air, urine, fœces, semen or worms are discharged, should be avoided. Calculus in the bladder, with gravel and sandy deposit in the urine, proves fatal when complicated with swelling of the hypogastric region and the scrotum, retention of urine and severe pain. Abnormal presentations during labour prove fatal, if inflammation of the womb, swelling from collection of blood in the pelvis, contraction of the vagina, and other complications mentioned in the chapter on malpresentations occur. The patient with ascites, whose abdomen falls or hangs down on either side, who looses his appetite and gets anasarca and diarrhœa, and whose abdomen feels full even after free purging, should be given up.

The following complications occurring in fever prove fatal. Affections of the mind, lying in an unconscious state, or falling down in a senseless state, and feeling cold internally while the body is hot; horripilation, red eyes, severe pain in the heart, and constant breathing through the mouth; hiccup, difficulty of breathing, thirst, insensibility, wandering eyes, constant difficult breathing, and debility; muddy eyes, affection of the mind, drowsiness, poverty of blood, and weakness of the flesh. Difficult breathing, pain in the abdomen, thirst, debility, and fever supervening in a case of diarrhœa, especially in old men, prove fatal. Paleness of the eyes, disinclination for food, difficult breathing, and copious and painful micturition are complications which prove fatal in phthisis. Difficult breathing, pain, thirst, distaste for food, insensibility of joints, and debility occurring in abdominal tumours, prove fatal. Swelling and stoppage of discharge, vomiting, hiccup, thirst, pain and difficult breathing occurring in deep-seated abscesses, prove fatal. In jaundice, yellow colour of the nails, teeth, eyes, and the yellow appearance of external objects are fatal symptoms. In internal hæmorrhages, copious vomiting of blood from the stomach, red colour in the eyes, and all sides of the compass appearing red, are fatal signs. In insanity, the patient constantly remaining with his face directed upward or downward, not sleeping, and becoming weak, and emaciated, are signs of impending death. In epilepsy, frequent recurrence of the fits, great debility, movements of the eyebrows and turning up of the eyes, are fatal signs.

CHAPTER XXXIV.

RELATING TO THE PROTECTION OF KING YUKTASENA.

I will now describe how the physician should protect king Yuktasena desirous of subduing his enemies. When the king accompanied by his ministers goes out on an expedition for conquest, he should be carefully protected, especially from poison. The roads, water, shady places, food, grass and fire-wood are poisoned by enemies. These should be enquired into and purified. The symptoms and treatment of these poisonings will be described in the *kalpasthána* or chapter on poisoning.

In the Atharva-veda it is stated that there are one hundred and one forms of death; of these one is owing to old age, the rest are all accidental. The physician, by his knowledge of medicine, and the priest by his knowledge of incantations should carefully and constantly protect the king from death caused by deranged humours or accidents. For this purpose, Brahma has revealed the Áyur-veda composed of eight parts and forming a portion of the Vedas. The prudent physician should always act according to the wishes of the priest. When misfortune befalls the king, there is confusion or mixture of all the castes, disappearance of virtuous actions and ruin of the subjects. Kings resemble ordinary men in appearance only. In command, charity, mercy, patience and power they are superhuman; hence the prudent man who seeks his welfare should regard the king like a god in his mind, words and good actions.

The physician should remain in a large tent close to that of the king, equipped with all the necessary articles for treatment. Patients suffering from poisons, wound or disease should come with confidence to the physician there located as the banner of fame and reputation. The physician learned in his own *śástras* and acquainted with the other *śástras* shines as a banner and should be respected like the king.

The physician, the patient, medicines and the attendant on the sick are the four agents in the successful treatment of disease. When the physician is well-qualified and the other agents possess their necessary qualities, even severe diseases can be cured in a short time. As a sacrificial ceremony cannot be completed without the presence of the *adhvaryu* (or a bráhmaṇa versed in the yajurveda), although the *udgátá, hotá* and *brahmá* (three sorts of brahmaṇas who recite the prayers etc. in a sacrifice) may be present, so a patient canno get well without the aid of a physician, although he may have the three other requirements. A qualified physician can alone often cure a patient, just as a helmsman alone can take a boat across the water without the aid of rowers.

The physician should be learned in the *śástras,* and have practical experience; he should be capable of acting for himself, light-handed, pure, bold, furnished with implements and medicines, ready-witted, sensible, learned, industrious, truthful and religious.

The patient who has vitality, strength, and a curable disease, who can procure all articles necessary for treatment, who possesses self-control, and who is faithful and obedient to his physician, is said to possess the necessary qualities.

Those medicines which are grown in a pure soil, collected on a lucky day, and administered in proper doses and times, which are pleasing, and endowed with their proper colour, odour and tastes, which can remove disorders of the humours, and cure diseases, which do not cause injury when given under misapprehension, are said to possess their necessary qualities.

The attendants on the sick should be amiable, capable of preserving secrets, strong in body, and devoted to the care of the sick. They should carry out the orders of the physician and never be tired.

CHAPTER XXXV.

ON THE TREATMENT OF THE SICK.

The physician on approaching a patient should first test his longevity, and if he has any vitality in him, then he should note the digestive power, age, bodily confirmation, strength, intellect, self-control, and disposition of the patient, as also the season, country and medicines.

The following characters indicate long life: large hands, feet, sides, back, nipples, teeth, face, shoulders, forehead, joints, fingers, eyes and arms; extended eyebrows, broad space between the breasts, long breath, short legs, penis and neck, deep intellect, low voice and navel, firm breasts, large hairs growing on the ears, the top of the head being behind the medium line; the body commencing to dry from the head downwards, after inunction of oil and bathing, the region of the heart being the last to dry. A patient possessing the above characteristics should be known as long-lived and should be treated. The opposite characters to those mentioned abov indicate short life, and mixed characters indicate middling longevity. On this subject there are the following verses:

He who has deep-seated joints, veins and nerves, compact limbs, and steady organs of sense, and whose bodily shape progressively becomes handsome, is long-lived. He who being free from illness from his birth, gradually increases in body, intellect and knowledge, attains long life.

Now hear from me the signs of middling longevity. He who has one, two, three or more extended lines apparent under the eyes, fleshy ear and feet, high or projecting back and elevated tip of the nose will live seventy years.

Now hear from me the signs of a short life. He who has short joints, long penis, no fold of skin below his chest, and no broad back, whose ears are placed higher than usual, and whose nose is prominent, who shows his gums while laughing or talking, and who sees with his eyes turned up, will live twenty-five years.

I will now describe the measurement of the limbs and parts of the body in their relation to longevity. The upper and lower extremities and the head are called *anga*. Their parts are called *pratyanga*. The great and second toes should measure two fingers' breadth of the individual. The third toe is four-fifth parts of the second, and the fourth and fifth ones, four-fifth parts of the third and fourth toes respectively.

The part of the foot anterior to its arch, up to the tip of the toes, is four fingers in length and five fingers in breadth. The heel is five fingers in length and four fingers in breadth. The entire foot is fourteen fingers in length. The circumference of the foot anterior to the ankle and above the joint, as also of the leg below the knee, is fourteen fingers each.

The leg is eighteen fingers in length, the thigh thirty-two fingers, the two together being fifty fingers in length. The leg is smaller than the thigh. The scrotum, chin, teeth, height of the nose, base of the ear, and the space between the two eyes measure two fingers in breadth. The penis, opening of the mouth, nose, ear, forehead, height of the throat, and the space between the two transparent portions of the eyes measure four fingers each. The vagina, the space between the penis and the navel, that between the navel and chest, that between the chest and throat, and that between the two breasts measure twelve fingers each. The breadth of the face and the circumference of the wrist and fore-arm are twelve fingers each.

The circumference of the *indravasti* (lower part of the calf), and the length of the arm between the shoulder and the elbow are sixteen fingers. The forearm including the hand measures twenty-four fingers. The two upper-arms together measure thirty-two fingers. The circumference of the two thighs measure thirty-two fingers. The space between the wrist and elbow is sixteen fingers. The palm is six fingers in length, and four in breadth. The space between the base of the thumb and the index finger is two fingers and that between the outer angle of the eye and the ear, five fingers. The index and ring fingers measure five and a half fingers each, and the thumb and little finger measure three and a half fingers each. The circumference of the face and neck is twenty-four fingers. The nostrils measure three-fourths of a finger. The cornea measures one-third part of the eye. The *dṛishṭi* or organ of sight measures one-ninth part of the cornea. The space between the top of the head to its hairy margin on the forehead is eleven fingers; that between the top and hairy margin in the neck measures ten fingers. The space between each ear and the centre of the neck is seven fingers. The circumference of the chest in males is equal to the circumference of the waist in females. The breadth of the chest in females is eighteen fingers, which is the breadth of the waist in males. The height of a male is altogether one hundred and twenty fingers. On this subject there are the following verses:

The male and female attain their full development at the ages of twenty-five and sixteen years respectively. If their bodies measure by their own fingers at these periods according to the measurements given above, then they attain long life and riches. If the measurements are of moderate length, their lives and riches will be moderate, and if very short, then these last will also be inferior.

I will now speak of the essences. Memory, veneration, wisdom, valour, purity, and devotion to useful works are the results or essences of *satva* or the quality of goodness. The lustre of the body and the firmness and white colour of the bones, teeth and nails, and sexual desires, are due to the essence of semen. Plumpness, strength, splendour of the body, depth and softness of the voice, and largeness of the eyes are due to the essence of marrow. Large head and shoulders, firm teeth, jaws, bones and nails are due to the essence of bones. Cool urine and perspiration, soft voice, large body, and capacity to bear hardships are due to the essence of fat. A body without openings or cracks in it, deep-seated bones and joints and muscular make are due to the essence of muscle. Smooth, copper-coloured nails, eyes, palate, tongue, palms and soles are due to the essence of blood. The lustre and softness of the skin is due to the essence of skin. The superiority of the essences in relation to longevity and prosperity lies in the order in which they are mentioned. On this subject there is the following verse:

Ordinarily the talented physician can succeed in treatment by testing the longevity of his patient by the measurements of the limbs, etc., and the characters of the essences of the patient.

Diseases have been already mentioned. They are either curable, relievable or incurable. With reference to prognosis, they may be divided into three other classes, *viz.*, *aupasargika prákkevala*, and *anyalakshaṇa*.

Aupasargika are diseases which occur in a person already suffering from some disease and render it worse. This new disease is called *upadrava* or complication. *Prákkevala* are diseases which are not preceded by any other disease or complications and occur originally. *Anyalakshaṇa* are diseases w foreshadow other diseases that will follow them. They are also called *púrvarúpa* or premonitory signs. Diseases which occur as complications should be so treated with reference to the main disease as not to increase the latter. When the complication is a severe one, it alone may be treated. *Prákkevala*, or original diseases, should be treated according to their symptoms. In disorders which occur as premonitory signs of other diseases, the main disease should be treated. On this subject there is the following verse:

There is no disease without derangement of the humours; hence the knowing physician will treat the symptoms of diseases with reference to the humours deranged, though the signs of the latter may not be fully developed. The seasons have been already described. In the cold season measures must be taken to obviate the effects of cold, and in the hot season the heat must be relieved, then the patient must be treated at the proper time, and no time should be lost. If the proper time for treatment is not available, or being available, is not taken advantage of, or if there is no treatment or too much treatment, then a curable disease will become incurable. That which cures a disease without giving rise to another disease is treatment properly so called, not that which, while curing one disease, begets another.

It has been stated before that fire (*agni*) is the digester of food. This digestive fire is of four sorts:—one of these is *sama* (normal) or unaffected by any of the humours. The other three are abnormal, and affected respectively by air, bile and phlegm. Digestive fire affected by air is called *vishama* or unequal, that affected by bile is *tíkshṇa* or sharp, and that affected by phlegm is called *manda* or weak.

The digestive fire that digests suitable food thoroughly and in due time is called *sama-agni*, that is, fire with all the humours, equally balanced in it. The digestive fire that sometimes digests the food properly, but at other times causes flatulence, pain, retention of secretions, diarrhœa, sense of weight in the abdomen, gurgling in the bowels, or dysenteric stools is called *vishama-agni*. *Tíkshṇa-agni* digests even large quantities of proper food rapidly. When this sort of fire is increased, it is called *atyagni*. This last repeatedly digests large quantities of food. After digestion it causes heat, dryness, burning sensation in the throat, palate, and lips. The fire that digests even a small quantity of proper food in a long time, causing at the same time a sense of weight in the abdomen and head, cough, asthma, discharge from the nose, vomiting, and pains in the body, is called *manda-agni*. *Vishama-agni* causes diseases from deranged air, *tíkshṇa-agni* causes diseases from disordered bile, and *manda-agni* causes disorders of phlegm. *Sama-agni* should be carefully preserved. *Vishama-agni* should be treated with cooling, acid and saline remedies. *Tíkshṇa-agni* should be treated with sweet, cooling medicines and purgatives. The same treatment should be followed for *atyagni* with the addition especially of milk, curdled milk and clarified butter from the buffalo. In *manda-agni* acrid, bitter and astringent medicines and emetics should be given. The god of fire seated in the abdomen digests the food, and also takes its juice. From the delicacy of the operation we cannot perceive it. The three sorts of air called *práṇa*, *apána*, and *samána*, from their respective seats, fan and preserve this fire from all sides.

Age is divided into three periods, namely, childhood, middle-age, and old age. Childhood extends up to fifteen years, and is subdivided into three stages, namely, milk-drinking, milk and rice, and rice-eating periods. The first extends up to one year, the second period includes the ages of two and three years. Above that is the rice-eating age. From sixteen to seventy years is middle age. This is subdivided into four periods, namely, those of growth, youth, full development, and decline; up to twenty is the period of increase, up to thirty is the period called *yauvana* or youth, from thirty to forty is the period when all the tissues, senses, strength and energy are in the state of perfection or fulness. After this there is slight or gradual decli up to seventy. After seventy the tissues, senses, strength energy decline day by day, wrinkles of the skin, grey hair, baldness supervene, and cough, difficulty of breathing and o complications render the individual incapable of any work, he looks decayed like an old house. This is old age. doses of medicines should be increased as age increases, with e exception that in old age the doses should be like those of childhood. On this subject there are the following verses:

In boyhood phlegm increases, in middle age bile, and in old age air increases or is predominant. This should be kept in view in the administration of medicines. Actual cautery, caustics and purgatives should not be used in the diseases of children and old men. In diseases requiring these agents, milder treatment should be had recourse to.

It has been before stated that the bodies of men are corpulent, thin or of middling conformation. The corpulent should be reduced, the thin should be treated with tonics, and the middle form carefully preserved by the physician. Strength is said to be a virtue, and weakness is looked upon as a result of defect in the constitution. As the strong are always inclined for all sorts of work, strength must be said to be superior to all other functions of the body. Sometimes the thin are strong and the corpulent are weak, hence the physician should ascertain the strength of an individual by athletic exercises.

The quality of goodness called *satva* enables a man to remain undisturbed in prosperity, as well as in adversity. The man possessing this quality, by restraining himself, can bear everything. The man endowed with the quality of passions, called *rajas*, can be restrained by others, but he who is endowed with the quality of darkness, called *tamas*, cannot bear anything.

Nature and medicines will be afterwards described. I will describe *sátmya* or those things that are good for the body. Country, time, race, seasons, diseases, exercise, water, sleep during day, the different tastes, etc., even when against nature are called *sátmya*, if they do not cause disease. Any sort of taste or exercise which is agreeable to one is *sátmya* or good for that particular individual.

Land is divided into three sorts, namely, *anúpa* (marshy), *jángala* (diversified with wood, hill, vale and water); and *sádháraṇa* or land of mixed character.

Anupa land has much water, is high in some places, low in others, has many rivers and thickets, plenty of rain, mild cold winds and many large hills and trees. People residing here have soft delicate bodies, and diseases of phlegm and air prevail in it. *Jángala* land is elevated, with scattered, low, thorny brushes, small rain fall, water supply derived from wells and springs, hot pungent winds, and a few small hills. People residing here have firm spare bodies. Diseases from disordered bile and air prevail there. Tracts of country with the characters of the two mentioned above common to it are called *sádháraṇa.* In a *sádháraṇa* country the humours are maintained in due equilibrium owing to the cold, rain, heat and winds being all moderate there, hence this is to be preferred. People in moist or dry lands are not so strong as those living in a *sádháraṇa* country. The humours accumulated in one's own country are apt to be deranged on going to another country, but if the person takes care about his food, sleep, work, etc., and adapts them to the requirements of the new place, there need not be any fear about health.

Diseases caused by defects of climate, seasons, sleep, exercise, etc., included under the collective term *sátmya* are readily cured if they are recent, if the patient has means to secure a physician, medicines, attendant, etc., if he has strength, a sound constitution and life in him, and if his bodily fire is unimpaired. If the patient has not these properties, then his complaint will not be cured. If these signs are of mixed character, that is, if he has some of these qualities and not others, then his illness will be cured with difficulty. When a particular treatment does not produce any good effect, then another form of treatment may be adopted, after the operation of the medicines first used is over, but different sorts of treatment pursued at the same time is not good. If, however, the disease is difficult to cure, then another medicine known to be effectual may be given as soon as the first medicine has been found to produce no effect. The sensible physician, who observes the signs and the rules above mentioned, divides with his exact medicines the chains of death in the shape of the numerous diseases of this world.

CHAPTER XXXVI.

TREATMENT OF INFLAMMATIONS.

Inflammatory swellings caused by deranged air are relieved by the applications of pastes made of the following drugs, namely, *matulunga* (*citrus medica*), *agnimantha* (*Premna serratifolia*), *devadáru* (*Cedrus deodára) mahaushadha*, (ginger) *ahinsrá* (*Capparis sepiaria*) and *rásná* (*Vanda Roxburghii*). Inflammation caused by deranged bile is relieved by applications of pastes made of the following drugs, namely, *durvá* (*Cynodon dactylon*), *nala múla* root of (*Phragmites karka*), *madhuka* (liquorice), *chandana* (sandal-wood), and the drugs included under the class called *śítala* or cooling drugs. In accidental inflammation and that caused by deranged blood the same medicines are also useful. In inflammation caused by poisons, their antidotes should be used as also the drugs that cure inflammation caused by deranged bile.

Inflammation caused by deranged phlegm, is relieved by applications made of *ajagandhá* (*Seseli Indicum*); *aśvagandhá* (*Withania somnifera*), *kálá (Ipomoea turpethum* with black root), *saralá* (*Ipopmoea turpethum)*, *ekaishiká* (*Stephania hernandifolia*) and *ajasṛingí* (*Gymnema sylvestre*). Inflammatory swellings caused by derangement of all the humours are relieved by application of the above three classes of medicines and the following, namely, *lodhra* (*Symplocos racemosa*), *pathyá* (*Terminalia chebula*), *piṇḍitaka (Randia dumetorun*), and *ananta* (*Hemidesmus Indicus*). The applications for inflammation caused by deranged air should be made with oily, acid, and saltish articles and they should be slightly warmed. Applications for inflammations caused by deranged bile should be made cool, and those for swellings from deranged phlegm should be warm and made with alkalies and cow's urine. Warm poultices made of the following drugs promote suppuration, namely fruits of *sana* (*Crotolaria juncea*), *múlaka* (*Raphanus sativus*), and *śigru* (*Moringa pterygosperma*), sesamum, and mustard seeds, flour of barley and wheat, *kiṇva* (the drugs used as a ferment in distilling spirits), and linseed. The following medicines are applied for opening absceses, namely, *chiravilva* (*Pongamia glabra*), *agnika* (*Semi carpus anacardium*), *chitraka* (*Plumbago Zeylanica*), *danti* (*Baliopermum montanum*), *hayamáraka* (*Nerium odorum*), and the excrement of the pigeon, vulture and heron. Caustic alkalies are also very effectual in opening abscesses. Demulcent articles, such as, flour of barley, wheat or *másha* (pulse of *Phaseolus Roxburghii*) promote discharge from the interior of abscesses.

Decoctions made of the following drugs are useful as corrective washes namely, *śankhiní* (*Andropogon acicularis*), *ankota* (*Alangium Lamarkii*), *sumanaḥ* (*Datura metal*), *karavíra* (*Neriu* *odorum*), *suvarchalá* (*Cleome viscosa*) and the medicines includ under the class called *áragvadhádi*.

The following articles are used for preparing tents for introducing into the cavities of abscesses, *ajagandhá* (*Seseli Indicum*), *ajasṛinga* (*Gymnema sylvestre*), *gavákshí* (*Citrullus colocynthis*), *langaláhvayá* (*Gloriosa superba*), *putika* (*Pongamia glabra*), *chitraka* (*Plumbago zeylanica*), *páṭhá* (*Stephania hernandifolia*), *viḍanga* (*Embelia ribes*), *elá* (*Elettaria cardamomum*), *hareṇu* (*Piper aurantiacum*), *dantí* (*Baliospermum montanum*), the three acrids, namely, ginger, black-pepper and long pepper, *yavakshára* (impure carbonate of potash), salts, orpiment, realgar, sulphate of iron, *trivṛitá* (*Ipomoea turpelhun*), and *suráshṭrajá* (red earth from Surat). These medicines may also be made into pastes for application to ulcers to improve their character.

Decoctions in oils and clarified butter for application to ulcers should be made with the following medicines, namely, sulphate of iron, *kaṭurohiṇí* (*Picrorrhizza kurroa*), *játi kanda* (tuber of *Jasminum grandiflorum*), *haridrádve* (turmeric and the wood of *Berberis lyceum*) as also the medicines mentioned above.

A decoction in clarified butter of the following drugs should be made, namely, *arka* (*Calotropis gigantea*), *snuhikshíra* (milky juice of *Euphorbia nerifolia*), caustic or alkalines ashes, *játimúla* (root of *Jasminum grandiflorum*), turmeric, wood *of Berberis lyceum*, sulphate of iron, *kaṭurahiṇí* (*Picrorrhiza kurroa*) as also the medicines mentioned before. The following drugs should also be added to oils for improving ulcers, namely, *mayúraka* (*Achyranthes aspera*), *rájavṛiksha* (*Cassia fistula*), *nimba* (*Azadirachta Indica*), *koshátakí* (*Luffa amara*), *tila* (sesamum seeds), *vṛihati* (*Solanum Indicum*), *kanṭakári* (*Solanum Jacquinii*), orpiment and realgar.

Powders for application to ulcers should be made of sulphate of iron, rock-salt, the substances used for fermenting wine, *vacha* (*Acorus calamus*), turmeric and the wood of *Berberis lyceum* as also other correcting medicines. The juice of the plants included in the class *sálasárádi*, of *paṭola* (*Tricosanthes dioica*) and of the three myrobalans should be applied for improving the condition of ulcers. Pastils for fumigating ulcers should be made of *śríveshṭaka* gum of (*Boswellia Thurifera*), *sarjarasa* (resin of *Shorea robusta*), *sarala* (*Pinus longifolia*) and *devadáru* (*Cedrus deodara*); decoctions or cold infusions of astringent and unirritating barks should be used as washes for promoting granulations in ulcers. Tents for promoting granulations should be made of *soma* (*Sarcostemna brevistigma*), *amṛita* (*Cocculus cordifolius*), *aśvagandhá* (*Withania somnifera*), the plants included under the class *kákolyádi*, and the buds of (*Ficus Bengalensis*). Pastes for promoting granulations should be made of *samanga* (madder), *soma* (*Sarcostemna brevistigma*), *sarala* (*Pinus longifolia*), *somavalká* (white catechu), sandalwood and the drugs included in the class called *kákolyádi*. Decoctions in clarified butter for promoting granulations in ulcers should be made of the following medicines, namely, *pṛithakparṇí*, (*Uraria lagopodioides*), *átmaguptá* (*Mucuna pruriens*), turmeric, wood of *Berberis lyceum*,

20

málati (*Aganosma caryophyllata*), *sitá* (*Jasminum Sambac*) and the drugs included in the class *kákolyádi*. Decoctions in oil should be made of the following drugs for promoting granulation in ulcers, namely, *Kálánusári* (a species of lichen), *aguru* (wood of *Aquilaria Agallocha*), turmeric, wood of *Berberis lyceum*, *devadáru* (*Cedrus deodara*) *priangu*, (*Aglaia Roxburghiana*) and *rodhra* (*symplocos racemosa*).

Powder for promoting granulatious should be made of *kangu* (*Setaria Itatica*), the three myrobalons, *rodhra* (*symplocos racemosa*), sulphate of iron, *s'ravaṇáhvayá* (*Sphoeranthus hirtus*) and the barks of *dhava* (*Anogeissus latifolia*) and *as'vakarṇa* bark of (*Shorea robusta*). Another powder is made of the following drugs, namely, *priangu* (*Aglaia Roxburghiana*), *sarjarasa* (resin of *Shorea robusta*), sulphate of iron and bark of *dhava* (*Anogeissus latifolia*). The juice of the following drugs promote granulations, namely, the barks of the plants included in the class called *Nyágrodhádivarga* and the three myrobalons. The following drugs promote granulations, namely, *upámárga* (*Achyranthes aspera*), *aśvagandhá* (*Withania somnifera*), *tálapatrí*, (*Salvinia cucullata*), *suvarchalá* (blacksalt), as also the drugs included in the class called *Kákolyádi*.

The following drugs applied to ulcers repress high granulations, namely, sulphate of iron, rocksalt, the ferment used for preparing spirits, *kuruvinda*, (a salt called *káncha lavana*), realgar, the shell of hen's egg, and the flower buds of *sumanaḥ* (*Jasminum grandiflora*), the fruits of *śirísha* (*Albizzia Lebbek*) and *karanja* (*Pongamia glabra*) and powders of the metals. In preparing these different medicines, the knowing physician will either use all the drugs mentioned under each head, or such of them as may be available.

CHAPTER XXXVII.

ON THE DIFFERENT VARIETIES OF SOILS WITH REFERENCE TO THE COLLECTION OF MEDICINES.

Medicines should be obtained from soils which are free from holes, gravel, stones, inequalities of the surface, ant-hills, burning ground, dead bodies, temples and sand. The land must be free from salt, not very friable, smooth, soft, firm, even, full of roots and of black, white or red colour. Medicines growing in soil of the above description should also be uninjured by worms, poisons, implements, heat, wind, fire, water, or by being crowded together for want of space. They should be endowed with one taste, ripe and with thick and deep roots. The person who gathers medicines should do so with his face towards the north. Such are the general characters of soils and medicines. The following are their special characters:

The land which is rocky, firm, heavy, black or dark blue in colour, and is covered with thick trees and crops is endowed largely with the properties of earth. The soil that is smooth, cool, white in colour, situated near water-courses and covered with fine crops and grapes and soft trees is endowed largely with the properties of water. The land that is of variegated colour, with light rocks and few trees with small white roots, is endowed largely with the properties of fire. The land which is dry, ash-coloured and covered with thin, dry trees with little juice, and holes in their trunk is endowed largely with the properties of air. The land which is soft, even, with many holes, with trees having little taste, watery, without substance, of dark blue colour like the vegetation of elevated mountains, is endowed largely with the properties of the sky.

Some authors say that roots, leaves, bark, milky juice, resin and fruits should be collected during the seasons *právish* (June—July), *varshá* (August—September), *śarat* (October—November), *hemanta* (December—January), *vasanta* (February—March), and *grishma* (April—May), respectively. This opinion is not correct, because all material objects belong to one of two classes, namely, cooling or heating. Cooling medicines should be collected in the cold season, and heating medicines in the hot seasons. In this way they will be obtained with their properties unimpaired. Cooling medicines gathered in the cold season from cool grounds, have very sweet, emollient and cooling qualities. The opposite of these applies to heating medicines.

Purgatives should be obtained from soils with excess of the properties of earth and water, emetics should be obtained from soils having in excess the properties of air, sky and fire. Medicines with both purgative and emetic properties should be obtained from soils with both the above characters. Alteratives (*sams'amana*) should be obtained from soils possessing in excess the properties of the sky. In this way they can be got of good strength. All medicines should be fresh, with the exception of honey, clarified butter, treacle, long pepper and *viḍaṉga* (s of *Embelia ribes*). All medicines should be used fresh with heir juices in them. In want of such, medicines less than a ye old may be used. On this subject there are the following verses:

Medicines should be known through the aid of cowherds, and ascetics, hunters, and others persons who go about in forests and live on roots, etc. When all the parts of a plant are used, as in preparing alkaline ashes from *Butea frondosa* and other plants, there is no limitation as to the time when they should be collected, but they may be gathered at any time. The earth is endowed with six sorts of tastes, odours and colours, hence the plants growing from it have six tastes. The taste of water is indistinct and not positively ascertained. It acquires a distinct taste after it is mixed with earth. Soils having all the tastes, etc., are known as *sádháraṇa* or common earth. Medicines attain their properties according to the nature of the soils in which they grow. Medicines which have not been tampered with by intriguers, which are in good condition and which possess their natural tastes, etc., may be used whether they are old or new. The seeds of *Embelia ribes,* long pepper, honey and clarified butter are more serviceable when old. Other articles if old, may be used, if not faulty in other respects.

For medicinal purposes the blood, hairs, nails, milk, urine and fœces, of animals should be taken from mature or middle aged animals after their digestion is over. Medicines should be kept in burnt earthen pots arranged on planks placed over stakes or pins. Houses for medicines or dispensaries should be built in pure and good sites.

CHAPTER XXXVIII.

CLASSIFICATION OF DRUGS.

Briefly speaking there are thirty-seven classes of medicines. Their names and the medicines included in them are as follows :—

1. Vidárigandhádigaṇa.*

Vidárigandhá,	Desmodium gangeticum, Buch.
Vidárí,	Batatas paniculata, Choisy.
Sahadevá,	Sida cordifolia, Linn.
Visvadevá,	Sida spinosa, Linn.
S'vadamshṭrá,	Tribulus terestres, Linn.
Pṛithakparṇí,	Uraria lagopodioides, D'C.
S'atávarí,	Asparagus racemosus, Willd.
Sárivá,	Ichnocarpus frutescens, R. Br.
Kṛishṇasárivá,	Black variety of Do. or Hemidesmus Indicus.
Jívaka, Ṛishavaka,	Two of the eight medicines included under the ancient name *ashṭavarga,* which cannot now be identified.
Mahásahá,	Teramnus labialis, Spreng.
Kshudrasahá,	Phaseolus trilobus, Ait.

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* These classes are named by the first article in the list of medicines included in them.

Vṛihatí,	Solanum Indicum, Linn.
Kaṇṭikárí,	Solanum Xanthocarpum, Schrad.
Punarṇavá,	Boerhaavia diffusa, Linn.
Eraṇḍa,	Ricinis communis, Linn.
Haṃsapádí,	Vitis pedata, Vahl.
Vṛiśchikálí,	Tragia involucrata, Jacq.
Ṛishaví,	Mucuna Pruriens, D'C.

These medidines called *Vidárigandhádigaṇa*, remove derangements of the bile and air and cure wasting, abdominal tumours, pain in the limbs, cough and difficulty of breathing.

2. Áragvadhádigaṇa.

Áragvadha,	Cassia fistula, Linn.
Madana,	Randia dumetorum, Lamk.
Gopaghoṇṭá,	Flacourtia Ramontchi, L'Hert.
Kuṭaja,	Holarrhena antidysenterica, Wall.
Páṭhá,	Stephania hernandifolia, Walp.
Ḳaṇṭakí,	Acacia catechu, Linn.
Páṭalá,	Stereospermum suaveolens, D. C.
Múrvá,	Sanseviera Zeylanica, Willd.
Indrayava,	Seeds of Holarrhena antidysenterica, Wall.
Saptaparṇa,	Alstonia scholaris, R. Br.
Nimba,	Melia Azadirachta, Linn.
Kuruṇṭaka,	Barleria Prionites, Linn.
Dásíkuruṇṭaka,	Blue variety of Ditto. Ditto.
Guḍúchí,	Tinospora cordifolia, Miers.
Chitraka,	Plumbago Zeylanica, Linn.
Śáraṅgashṭá,	Pongamia glabra, Vent.
Karañja,	Carissa carandas, Linn.
Paṭola,	Trichosanthes dioica, Roxb.
Kirátatikta,	Ophelia chirata, Grisebach.
Sushaví,	Momordica Charantia, Linn.

These medicines included under the class *Áragvadhádi* destroy phlegm and poisons, and cure urinary disorders, skin diseases, fever, vomiting, itches and ulcers.

3. Varuṇádigaṇa.

Varuṇa,	Cratæva religiosa, Forst.
Ártagala,	Barleria cristata, Linn.
S'igru,	Moringa pterygosperma, Gaertn.
Madhus'igru,	Red variety of ditto ditto.
Tarkárí,	Sesbania aculeata, Pers.
Meshasṛingí,	Gymnema sylvestre, R. Br.
Pútíka,	Guilandina Bonducella, Linn.
Naktamála,	Pongamia glabra, Vent.
Moraṭa,	Sanseviera Zeylanica, Willd.
Agnimantha,	Premna serratifolia, Linn.
Sairíyaka,	Barleria cristata, Linn.
Kuravaka,	Red variety of ditto ditto.
Vimbí,	Coccinea Indica, W. A.
Vasuka,	Calotropis gigantea, R. Br.
Vasira,	Scindapsus officinalis, Schott.
Chitraka,	Plumbago Zeylanica, Linn.
S'atávarí,	Asparagus racemosus, Willd.
Vilva,	Ægle Marmelos, Corr.
Ajaśṛingí,	Gymnema sylvestre, R. Br.
Darbha,	Imperata cylindrica, Beam.
Vṛihatí,	Solanum Indicum, Linn.
Kaṇṭakárí,	Solanum Xanthocarpum, Schrad.

These medicines included under the class *Varuṇádi*, check phlem and fat and cure headache, abdominal tumours and internal abscesses.

4. Víratarvádigaṇa

Vírataru,	Terminalia Arjuna, Bedd.
Sahachara,	Barleria cristata, Linn.
Kuravaka,	Red variety of ditto.
Darbha,	Imperata cylindrica, Beam.
Vṛikshádaní,	Vanda Roxburghii, R. B.
Gundrá,	Panicum uliginosum, Roxb.
Nala,	Phragmites Karka, Tem.
Kus'a,	Poa cynosuroides, Linn.

Kás'a,	Saccharum spontaneum, Linn.
Aśmabhedaka,	Coleus Amboinicus, Sow.
Agnimantha,	Premna serratifolia, Linn.
Moraṭá,	Sanseviera zeylanica, Willd.
Vasuka,	Calotropis gigantea, R. Br.
Vas'ira,	Scindapsus officinalis, Schott.
Bhalluka,	Calosanthes Indica, Bl.
Kuraṇṭaka,	Barleria Prionites, Linn.
Indívara,	Nymphœa stellata, Linn.
Kapotavan̂ká,	Herpestes Monnieria, H. B. K.
S'vadam̱shṭrá,	Tribulus terrestrís, Linn.

These medicines included under the class *Víratarvádi*, cures diseases caused by deranged air, calculus in the bladder, gravel, painful micturition and suppression of urine.

5. Sálasárádigaṇa.

Sálasára,	Resin of Shorea robusta.
Ajakarṇa,	Shorea robusta, Gaertn.
Khadira,	Acacia catechu, Linn.
Kadara,	Acacia Arabica, Willd.
Kálaskandha,	Diospyros embryopteris, Pers.
Kramuka,	Areca catechu, Linn.
Bhūrja,	Betula Bhojpattra, Wall.
Meshaśṛiṉgí,	Gymnema sylvestre, R. Br.
Tinis'a,	Ougenia Dalbergioides, Benth.
Chandana,	Santalum album, Linn.
Kuchandana,	Pterocarpus santalinas, Linn.
S'im̱śapá,	Dalbergia Sissoo, Roxb.
S'irísha,	Albizzia Lebbek, Benth.
Asana,	Terminalia tomentosa, W. and A.
Dhava,	Anogeissus latifolia, Wall.
Arjuna,	Terminalia Arjuna, Roxb.
Tála,	Borassus flabelliformis, Linn.
Sáka,	Tectona grandis, Linn.
Naktamála,	Pongamia glabra, Vent.
Pútíká,	Guilandina Bonducella, Linn.

As'vakarṇa,	Shorea robusta, Gaertn.
Aguru,	Aquilaria Agallocha, Roxb.
Kálíyaka,	Sandalwood of yellow colour.

These medicines, included under the class *Sálasárádigaṇa* decrease phlegm and fat and cure skin diseases, urinary disorders, and jaundice.

6. Rodhrádigaṇa.

Rodhra,	Symplocos racemosa, Roxb.
Sávara Rodhra,	A variety of ditto ditto.
Palás'a,	Butea frondosa, Roxb.
Kuṭannaṭa,	Calosanthes Indica, Bl.
As'oka,	Saraca Indica, Linn.
Phanjí,	Clerodendron Siphonanthus, R. Brown.
Kaṭphala,	Myrica sapida, Wall.
Elaváluka,	A red powder the seed of some plant.
Sallakí,	Boswellia serrata, Colebr.
Jiñginí,	Rubia cordifolia, Linn.
Kadamba,	Anthocephalus Cadamba, Benth. and Hook.
Sála,	Shorea robusta, Gaertn.
Kadalí,	Musa sapientum, Linn.

These medicines, included under the class *Rodhrádi*, remove phlegm and fat and discharges from the vagina. They are astringent and useful in ulcers and poisoning.

7. Arkádigaṇa.

Arka,	Calotropis gigantea, R. Br.
Alarka,	White variety of above.
Karañja,	Pongamia glabra, Vent.
Pútíkarañja,	Guilandina Bonducella, Linn.
Nágadantí,	Heliophytum Indicum, D'C.
Mayúraka,	Achyranthes aspera, Linn.
Bhárgí,	Clerodendron Siphonanthes, R. Br.
Rásná,	Vanda Roxburghii, R. Br.
Indrapushpí,	Gloriosa superba, Linn.
Kshudraśvetá,	Batatas paniculata, Chois.

Mahás'vetá,	Black variety of above.
Vris'chikálí,	Tragia involucrata, Jacq.
Alavaṇa,	A tree which cannot be identified.
Tápasavṛiksha,	Balanites Roxburghii, Planchon.

These medicines included under the class *Arkádigaṇa* remove phlegm, fat and poisons and intestinal worms, cure skin diseases and especially improve the condition of ulcers.

8. Surasádigaṇa.

Surasá,	Ocimum Sanctum, Linn.
S'veta-surasá,	White variety of above.
Phaṇijjhaka,	Small-leaved variety of above.
Arjaka,	Ocimum Basilicum, Linn.
Bhústṛiṇa,	Andropogon schœnanthus, Linn.
Sugandhaka,	Red variety of Ocimum Sanctum.
Sumukha,	Wild variety of Ocimum Basilicum.
Kálamála,	Black variety of Ocimum Sanctum.
Kásamarda,	Cassia Sophora, Linn.
Kshavaka,	Achyranthes aspera, Linn.
Kharapushpá,	Hygrophylla spinosa, T. Ander.
Viḍañga,	Embelia Ribes, Burm.
Kaṭphala,	Myrica sapida, Wall.
Surasí,	A tree which cannot be identified.
Nirgunḍí,	Vitex Negundo, Linn.
Kulahala,	Celsia Caromandeliana, Roxb.
Indurakarṇiká,	Salvinia cucullata, Roxb.
Phañjí,	Clerodendron siphonanthus, R. Brown.
Práchívala,	A pot-herb which cannot be identified.
Kákamáchí,	Solanum nigrum, Linn.
Vishamushṭika,	Strychnos nux vomica, Linn.

These medicines, included under the class *Surasádigaṇa*, remove phlegm and worms and cure catarrh, cough, asthma and disinclination for food. They improve also the character of ulcers.

9. Mushkakádigaṇa.

Mushkaka,	Schrebera swietenoides, Roxb.
Palás'a,	Butea frondosa, Roxb.

Dhava,	Anogeissus latifolia, Wall.
Chitraka,	Plumbago Zeylanica, Linn.
Madana,	Randia dumetorum, Lamk.
S′iṃśapá,	Dalbergia Sissoo, Roxb.
Vajravṛiksha,	Euphorbia neriifolia, Linn.
Triphalá,	The three myrobalans.

These medicines included under the class *Mushkakádigaṇa* remove fat, correct defects of semen, and cure urinary complaints, piles, jaundice, gravel and calculus in the bladder.

10. Pippalyádigaṇa.

Pippalí,	Catkin of Piper longum, Linn.
Pippalímúla,	Root of above.
Chavya,	Piper chaba, Hunter.
Chitraka,	Plumbago Zeylanica, Linn.
S′ṛingavera,	Zingiber officinale, Rox.
Maricha,	Piper nigrum, Linn.
Hastipippalí,	Scindapsus officinales, Schott.
Hareṇuka,	Piper aurantiacum, Wall.
Elá,	Elettaria Candamomum; W. et Maton.
Ajamodá,	Pimpinella involucrata, W. and A.
Indrayava,	Seeds of Holarrhena antidysenterica, Wall.
Páṭhá,	Stephania hernandifolia, Walp.
Jíraka,	Cuminum cyminum, Linn.
Sarshapa,	Mustard seeds.
Mahánimbaphala,	Fruit of Melia Azedarach, Linn.
Hingu,	Assafœtida.
Bhárgí,	Clerodendron Siphonanthus, R. Br.
Madhurasá,	Sanseviera Zeylanica, Willd.
Ativishá,	Aconitum heterophyllum, Wall.
Vachá,	Acorus calamus, Linn.
Viḍañga,	Embelia Ribes, Burm.
Káṭurohiṇí,	Picrorrhiza Kurroa, Royle.

These medicines, called *Pippaládigaṇa*, decrease air and phlegm, promote the digestive fire and digestion, cure catarrh, abdominal tumours, disinclination for food and painful dyspepsia.

11. Eládigaṇa.

Elá,	Elettaria Cardamomum, W. et Maton.
Tagara,	Tabernæmontana Coronaria, Linn.
Kushṭha,	Saussurea auriculata, Bth. et Hf.
Mám̲sí,	Nardostachys Jatamansi, D'C.
Dhyámaka,	Andropogon Schœnanthus, Linn.
Tvak,	Bark of Cinnamomum Zeylanicum, Breyn.
Patra,	Cinnamomum Tamala, Nees.
Nágapushpa,	Mesua ferrea, Linn.
Priañgu,	Aglaia Roxburghiana, W. A.
Hareṇuka,	Piper aurantiacum, Wall.
Vyághranakha,	A fragrant substance like a nail the operculum of Purpura and Murex.
S'ukti,	Bivalve shells.
Chanḍá,	Canṣcora decussata, R. et Sch.
Sthauneyaka,	A sort of gall caused by an insect.
S'ríveshṭaka,	Pinus longifolia, Roxb.
Chocha,	A sort of cinnamon.
Choraka,	Andropogon acicularis, Retz.
Bálaka,	Sida cordifolia, Linn.
Gug̃g̃ulu,	Gum resin of Balsamodendron Mukul, Hooker.
Sarjarasa,	Resin of shorea robusta, Gaertn.
Turushka,	Liquid storax.
Kunduruka,	Boswellia serrata, Colebr.
Aguru,	Aquilaria, Agallocha, Roxb.
Spṛikká,	Trigonella corniculata, Linn.
Uśíra,	Andropogon muricatum, Retz.
Bhadradáru,	Cedrus Deodara, Loud.
Kuñkuma,	Crocus sativus, Linn.
Punnágakes'ara,	Flowers of Calophyllum inophyllum, Linn.

These medicines included under the class called *Eládigaṇa* remove phlegm, air and poisons, improve the complexion, and cure prurigo, urticaria and tubercular eruptions.

12. Vachádigaṇa.

Vachá,	Acorus calamus, Linn.
Musta,	Cyperus rotundus, Linn.
Ativishá,	Aconitum heterophyllum, Wall.
Abhayá,	Terminalia chebula, Retz.
Bhadradáru,	Cedrus deodara, Loud.
Nágakeśara,	Flowers of Mesua ferrea, Linn.

13. Haridrádigaṇa.

Haridrá,	Curcuma longa, Roxb.
Dáruharidrá,	Berberis asiatica, D'C.
Kalaśí,	Uraria lagopodioides, D'C.
Kuṭajavíja,	Seeds of Holarrhena antidysenterica, Wall.
Madhuka,	Bassia latifolia, Roxb.

The medicines included under these two classes called *Vachádi* nd *Haridrádi* purify the milk, cure recent diarrhœa, and remove erangements of the humours.

14. S'yámádigaṇa.

S'yámá,	Hemidesmus Indicus, R. Br.
Mahásyámá,	Ichnocarpus frutescens, R. Br.
Trivṛit,	Ipomœa Turpethum, Linn.
Dantí,	Baliospermum montamum, Mull. Arg.
S'aṅkhiní,	Canscora decussata, R. et Sch.
Tilvaka,	Symplocos racemosa, Roxb.
Kampillaka,	Mallotus Philippensis, Mull. Arg.
Ramyaka,	Root of Trichosanthes, dioica, Roxb.
Kramuka,	Areca catechu, Linn.
Putraśrení,	Salvinia cucullata, Roxb.
Gavákshí,	Citrullus colocynthis, Schrad.
Rájavṛiksha,	Cassia fistula, Linn.
Karañja,	Pongamia glabra, Veut.
Pútí Karañja,	Guilandina Bonducella, Linn.
Guḍúchí,	Tinospora cordifolia, Miers.
Saptalá,	Stereospermum Suaveolens, D'C.
Chhágalántri,	Argyreia speciosa, Swt.

Sudhá,	Euphorbia neriifolia, Linn.
Suvarṇakshírí,	Cleome felina, D'C.

These medicines included under the class *S'yámádigaṇa* cure abdominal tumours and poisoning, act on the bowels in tympanites and ascites, and remove suppression of discharges.

15. Vṛihatyádigaṇa.

Vṛihatí,	Solanum Indicum, Linn.
Kanṭakári,	Solanum Xanthocarpum, Schrad.
Kuṭajaphala,	Holarrhena antidysenterica, Wall.
Páṭhá,	Stephania hernandifolia, Walp.
Madhuka,	Glycyrrhiza glabra, Linn.

These medicines, included under the class, *Vṛihatyádigaṇa* are digestive, remove air, bile and phlegm, and cure disinclination for food, nausea, and painful micturition.

16. Paṭoládigaṇa.

Paṭola,	Trichosanthes dioica, Roxb.
Chandana,	Santalum album, Linn.
Kuchandana,	Pterocarpus santalinus, Linn.
Múrvá,	Sanseviera Zeylanica, Willd.
Guḍúchí,	Tinospora cordifolia, Miers.
Páṭhá,	Stephania hernandifolia, Walp.
Kaṭurohiṇí,	Picrorrhiza Kurroa, Royle.

These medicines, included under the class *Paṭoládi*, remove bile, phlegm and disinclination for food, and cure fever, ulcers, vomiting, prurigo and poisoning.

17. Kákolyádigaṇa.

Kákolí,	A root not identified.
Kshirakákolí,	A bulb of the onion tribe, not identified.
Jívaka,	Not available at present.
Ṛishavaka,	Ditto ditto.
Mudgaparṇí,	Phaseolus trilobus, Ait.
Máshaparṇí,	Teramnus labialis, Spreng.
Medá,	Not available now.
Mohámedá,	Ditto ditto.
Chhinnaruhá,	Tinospora Cardifolia, Miers.

Karkaṭaśṛingí,	Rhus succedania, Linn.
Tugákshírí,	Bamboo manna.
Padmaka,	A fragrant wood brought from Malwa.
Prapauṇḍaríka,	Root-stock of Nymphœa lotus, Willd.
Ṛiddhi,	Not available at present.
Vṛiddhi,	Ditto ditto.
Mṛidvíká,	Vitis vinefera, Linn.
Jívantí,	Cælogyne ovalis, Lindl.
Madhuka,	Glycyrrhiza glabra, Linn.

These medicines, called *Kákolyádi,* remove derangements of bile, blood and air, and increase phlegm and the secretion of milk. They increase strength, promote nutrition and prolong life.

18. Ushakádigaṇa.

Ushaka,	A sort of alkaline earth.
Saindhava,	Rock salt.
S'ilájatu,	A bituminous substance.
Kásísadvaya,	Sulphate of iron two sorts, namely, green and yellowish.
Hingu,	Assafœtida.
Tutthaka,	Sulphate of copper.

The medicines, included under the class, *Ushakádi* destroy phlegm, dry up fat, and cure calculus, gravel, painful micturition and abdominal tumours.

19. S'arivádigaṇa.

Sárivá,	Ichnocarpus frutescens, R. Br.
Madhuka,	Liquorice root.
Chandana,	Santalum album, Linn.
Kuchandana,	Pterocarpus Santalinus, Linn.
Padmaka,	A fragant wood brought from Malwa.
Kás'maríphala,	Fruit of Gmelina arborea, Linn.
Madhukapushpa,	Flowers of Bassia latifolia, Roxb.
Uśíra,	Andropogon muricatum, Retz.

The medicines, included under the class, *S'árivádi* relieve thirst, bilious fever and burning of the body, and cure hæmorrhages from the internal organs.

20. Añjanádigaṇa.

Añjana,	Galena.
Rasáñjana,	Watery extract of the wood of Berberis Asiatica.
Nágapushpa,	Flowers of Mesua ferrea, Linn.
Priañgu,	Aglaia Roxburghiana, W. A.
Nílotpala,	Nymphœa Stellata, Linn.
Nalada,	Andropogon muricatum, Retz.
Nalina-keśara,	Stamens of Nelumbium speciosum, Linn.
Madhuka,	Liquorice root.

The medicines included under the class *Añjanádi* relieve internal burning of the body, hæmorrhages and poisoning.

21. Parushádigaṇa.

Parushaka,	Grewia Asiatica, Linn.
Drákshá,	Vitis vinifera, Linn.
Kaṭphala,	Myrica sapida, Wall.
Dáḍima,	Punica Granatum, Linn.
Rájadana,	Mimusops Indica, D'C.
Katakaphala,	Fruit of strychnos potatorum, Linn.
S'ákaphala,	Fruit of Tectonia grandis, Linn, fil.
Triphalá,	The three myrobalans.

The medicines included under the class *Parushakádi* are agreeable, appetizing and refrigerant. They remove air and relieve painful micturition.

22. Priañgvádigaṇa.

Priañgu,	Aglaia Roxburghiana, W. A.
Samañgá,	Mimosa pudica, Linn.
Dhátakí,	Woodfordia floribunda, Salish.
Punnága,	Calophyllum inophyllum, Linn.
Raktachandana,	Pterocarpus Santalinus, Linn.
Kuchandana,	Caesalpinia sappan, Linn.
Mocharasa,	Gum of Bombax Malabaricum.
Añjana,	Watery extract of the wood of Berberis Asiatica, etc.

Kumhhíka,	Pistia stratiotis, Linn.
Srotoñjana,	Calcareous or iceland spar.
Padmakeśara,	Stamens of Nelumbium speciosum, Linn.
Yojanavallí,	Ṛubia cordifolia, Linn.
Dírghamúlá,	Ichnocarpus frutescens, R. Br.

23. Ambashṭádigaṇa.

Ambashṭá,	Stephania hermandifolia, Wap.
Dhátakí kusuma,	Flowers of Woodfordia floribunda, Salish.
Samañgá,	Mimosa pudica, Linn.
Kaṭvañga,	Colosanthes Indica, Linn.
Madhuka,	Liquorice root.
Vilvapeśiká,	Dried Bael fruit.
Rodhra,	Symplocas racemosa, Roxb.
Sávararodhra	A variety of ditto ditto.
Palás'a,	Butea frondosa, Roxb.
Nandívṛiksha,	Cedrela Toona, Roxb.
Padmakes'ara,	Stamens of Nelumbium speciosum, Linn.

The medicines, included in the classes *Priyañgádi* and *Ambashṭádi*, are astringent and cure chronic diarrhœa and promote healing of wounds and inflamed ulcers.

24. Nyagrodhádigaṇa.

Nyagrodha,	Ficus Bengalensis, Linn.
Udumbara,	Ficus glomerata, Willd.
Asvattha,	Ficus religiosa, Linn.
Plaksha,	Ficus infectoria, Willd.
[illegible]íka,	Bassia latifolia, Roxb.
Kapítana,	Spondias mangifera, Pers.
Kakubha	Terminalia Arjuna, Bedd.
Ámra,	Mangifera Indica, Linn.
Kośámra,	Mangifera sylvatica, Roxb.
Choraka,	Andropogon acicularis, Retz.
Patra,	Leaves of Cinnamomum Tamala, Nees.

Jambú,	Eugenia Jambolana, Lamk.
Vanajambu,	Wild variety of ditto.
Piyála,	Buchanania latifolia, Roxb.
Madhuka,	Glycyrrhiza glabra, Linn.
Rohiṇí,	Picrorrhiza Kurroa, Royle.
Vakúla,	Mimusops elengi, Linn.
Kadamba,	Anthocephalus cadamba, Benth. an Hook.
Vadarí,	Zizyphus Jujuba, Lamk.
Tindukí,	Diospyros Embryopterus, Pers.
Sallakí,	Boswellia serrata, Colebr.
Rodhra,	Symplocos racemosa, Roxb.
Sávararodhra,	A variety of ditto ditto.
Bhallátaka,	Semicarpus Anacardium, Linn.
Palás'a,	Butea frondosa, Roxb.
Nandivṛiksha,	Cedrela toona, Roxb.

The medicines, included under the class *Nyágrodhádigaṇa*, ar astringent and useful in ulcers, fractures, internal hæmorrhag burning of the body, and vaginal discharges. They rem

25. Guḍúchyádi gaṇa.

Guḍúchí,	Tinospora cordifolia, Miers.
Nimba,	Melia Azadirachta, Linn.
Kustumburu,	Coriandrum sativum, Linn.
Chandana,	Santalum album, Linn.
Padmaka,	A sort of fragrant wood.

The medicines, included in the class *Guḍúchyádi*, promote appetite, relieve nausea and disinclination for food, vomiting, thirst, and heat of body. They cure all sorts of fever.

26. Utpaládi gaṇa.

Utpala,	Nymphœa stellata, Linn.
Raktotpala,	Nymphœa Rubra, Roxb.
Kumuda,	Nymphœa Lotus, Linn.
Saugandhika,	Variety of ditto ditto.
Kuvalaya,	Nymphœa stellata, blue variety, Linn.
Puṇḍaríka,	Nelumbium speciosim, white variety, Willd.

Madhuka,	Liquorice root.

The medicines, included in the class *Utpaládi*, reduce heat, bile, and blood, relieve thirst, and are useful in poisoning, heart-disease, vomiting and fainting.

27. Mustakádi gaṇa.

Mustá,	Cyperus rotundus, Linn.
Haridrá,	Curcuma longa, Roxb.
Daruharidrá,	Berberis Asiatica, D'C.
Harítakí,	Terminalia Chebula, Retz.
A'malaka,	Phyllanthus Emblica, Linn.
Vibhítaka,	Terminalia Bellerica, Roxb.
Kushṭha,	Saussurea auriculata, Bth. et Hf.
Haimavatí,	Acorus Calamus, white variety, Linn.
Vachá,	Acorus Calamus, Linn.
Páṭhá,	Stephania hernandifolia, Walp.
Katurohiṇí,	Picrorrhiza Kurroa, Royle.
S'áraṅgashṭa,	Pongamia glabra, Vent.
Ativishá,	Aconitum heterophyllum, Wall.
Dráviḍí,	Elettaria cardamomum, W. et Maton.
Bhallátaka,	Semicarpus anacardium, Linn.
Chitraka,	Plumbago Zeylanica, Linn.

These medicines, included under the class *Mustakádi*, remove phlegm, promote digestion, purify the milk, and cure disorders of the vagina.

28. *Triphalá*, or the three myrohalans, namely, emblic, belleric and chebulic, destroy phlegm and bile, promote digestion, cure urinary disorders, skin diseases and intermittent fevers, and are good for the eyes.

29. *Trikaṭu* or long pepper, black and ginger is also called *tryúshaṇa* or the three acrids. These medicines remove phlegm and fat, promote digestion and cure urinary disorders, skin diseases, abdominal tumours, ozœna and dyspepsia with weak digestive power.

30. A'malakádi gaṇa.

A'malakí,	Phyllanthus emblica, Linn.

Harítakí,	Terminalia Chebula, Retz.
Pippalí,	Piper longum, Linn.
Chitraka,	Plumbago zeylanica, Linn.

These medicines, included under the class *Ámalakádi,* cure all sorts of fever, remove phlegm, and disinclination for food, promote appetite and strength, and are useful in diseases of the eyes.

31. Trapvádi gaṇa.

Trapu,	Tin.
Sísa,	Lead.
Támra,	Copper.
Rajata,	Silver.
Kṛishṇaloha,	Iron.
Suvarṇa,	Gold.
Lohamala,	Iron rust.

The medicines, included under the class *Tripvádi,* destroy poisons and intestinal worms, relieve thirst, cure heart-disease, jaundice and urinary disorders.

32. Lákshádigaṇa.

Lakshá,	Lac.
Revata,	Cassia fistula, Linn.
Kuṭaja,	Holarrhena antidysenterica, Roxb.
As'vamára,	Nerium odorum, Soland.
Kaṭphala,	Myrica sapida, Wall.
Haridrá,	Curcuma longa, Roxb.
Dáruharidrá,	Berberis Asiatica, D' C
Nimba,	Melia Azadirachta, Linn.
Saptachhada,	Alstonia scholaris, R. Br.
Málatí,	Aganosma caryophyllata, G. Don.
Tráyamáṇá,	Ficus heterophylla, Linn. fil.

These medicines relieve disorders of the phlegm and bile, have astringent, bitter and sweet tastes, cure skin diseases and intestinal worms, and purify foul ulcers.

I will now speak of the two *Punchamúlas* or five roots, called *kaníya* and *mahat,* or small and large, respectively, the two together being designated *Daśamúla* or the ten roots.

33. Kaníya panchamúla.

Trikaṇṭaka,	Tribilus terrestris, Linn.
Vṛihatí,	Solanum Indicum, Linn.
Kanṭakárí,	Solanum Xanthocarpum, Schrad.
Pṛithakparṇí,	Uraria lagopodioides, D'C.
Vidarigandhá,	Desmodium Gangeticum, Burm.

These medicines, called *Kaníya panchamúlaka*, have astringent, bitter, and sweet tastes, remove air and bile, and act as tonics and restoratives.

34. Mahat panchamúla.

Vilva,	Ægle Marmelos, Corr.
Agnimantha,	Premna serratifolia, Linn.
Ṭunṭuka,	Calosanthes Indica, Bl.
Pátalá,	Stereospermum, suaveolens.
Káśmarí,	Gmelina arborea, Linn.

The medicines, included under the class *Mahat panchamúla*, are bitter, but after digestion, have sweet taste, they promote appetite, and remove disorders of the air and phlegm. These two classes used together under the name of *Das'amúla* relieve difficult breathing, promote digestion, remove disorders of phlegm, bile and air, and cure all sorts of fever.

35. Vallísam̱jña.

Vidárí,	Batatas paniculata, Choisy.
Sárivá,	Ichnocarpus frutescens, R. Br.
Rajaní,	Curcuma longa, Roxb.
Guḍúchí,	Tinospora cordifolia, Miers.
Ajaśṛiñgí,	Gymnema sylvestre, R. Br.

36. Kanṭaka sam̱jña.

Karamarda,	Carissa carandas, Linn.
Trikanṭaka,	Tribulus terrestris, Linn.
Sairíyaka,	Barleria cristata, Linn.
S'atávarí,	Asparagus racemosus, Willd.
Gṛidhranakha,	Hygrophila spinosa, T. Anderson.

The medicines, included under these two classes, cure internal hæmorrhages, the three sorts of anasarca caused respectively by deranged air, bile and phlegm, all sorts of urinary disorders, and defects of semen.

37. Tṛiṇasam̲jñaka.

Kus'a,	Poa cynosuroides, Linn.
Kás'a,	Saccharum spontaneum, Linn.
Nala,	Phragmites karka, Trin.
Darbha,	Imperata cylindrica, Beav.
Káṇḍekshuka,	Saccharum officinarum, Linn.

The medicines, included under the class *Tṛiṇa sam̲jñaka,* given with milk, soon cure internal hæmorrhages and disorders of the urine. Of the five classes each consisting of five articles above described, the first two, namely, *kaníya pancha múla* and *mahát-pancha múla* remove disorders of the air, the last two, namely, *kanṭaka sam̲jña* and *tṛiṇa sam̲jña* remove disorders of bile and the remaining one, namely, *vallí sam̲jña* cures disorders of phlegm.

I will elsewhere describe the classes called *tṛivṛitádi,* etc. The classes of medicines are thus briefly described here. In the chapters on treatment, their uses will be explained in further detail with reference to the humours deranged and the strength of the patient. The sensible physician should, with these medicines, prepare external applications, infusions, and decoctions in water, oil and clarified butter, according to the requirements of each case. Medicines should be collected according to the rules on the subject, and carefully preserved in all seasons, in rooms protected from smoke, rain, wind and dust. These medicines should be used singly, or in combinations of several medicines, or of entire classes, or of more than one class according to the nature of the disease and the extent of derangement of the humours.

CHAPTER XXXIX.

ON EVACUANTS AND ALTERATIVES.

The following medicines act on or purify the upper parts of the body, namely,

Madana,	Randia dumetorum.
Kuṭaja,	Wrightia antidysenterica.
Jímútaka,	Andropogon serrata.
Ikshváku,	Wild or bitter variety of Lagenaria vulgaris.
Dhámárgava,	(Pítaghoshá) yellow variety of Luffa amara.
Kṛitavedhana,	Luffa amara.
Sarshapa,	Mustard seeds.
Viḍañga,	Embelia Ribes.
Pippalí,	Piper longum.
Karanja,	Pongamia glabra.
Prapunnáḍa,	Cassia Tora.
Kovidára,	Bauhinia variegata.
Karvudára,	Cordia Myxa.
Arishṭa,	Melia Azadirachta.
As'vagandhá,	Withania somnifera.
Vidula,	Rumex vesicarius.
Bandhujívaka,	Pentapetes phœnicea.
S'vetá,	Clitoria Ternatea.
S aṇapushpí,	Clotalaria verrucosa.
Vimbí,	Coccinea Indica.
Vachá,	Acorus Calamus.
Mṛigerváru,	Citrullus Colocynthis.
Chitrá,	Plumbago Zeylanica.

Of these, the fruits should be used of the plants mentioned above, up to *prapunnáḍa*. From *kovidára* downwards the roots should be used.

The following drugs purify the lower parts of the body, namely,—

Ṭrivṛitá,	Ipomœa Turpethum
S'yámá,	Black-rooted variety of above.
Dantí,	Baliospermum montanum.
Dravantí,	Salvinia cucullata.
Saptalá,	Jasminum Sambac.
S'aṅkhiní,	Andropogon acicularis.
Visháṇiká,	Gymnema sylvestre.
Gavákshí,	Citrullus colocynthis.
Chhágalántrí,	Argyreia speciosa.
Snuk,	Euphorbia neriifolia.
Suvarṇakshírí,	Cleome felina.
Chitraka,	Plumbago zeylanica.
Kiṇihí,	Achyranthes aspera.
Kus'a,	Poa cynosuroides.
Kás'a,	Saccharum spontaneum.
Tilvaka,	Symplocos racemosa.
Kampillaka,	Mallotus Philippensis.
Ramyaka,	Root of Trichosanthes dioica.
Páṭalá,	Stereospermum suaveolens.
Púga,	The beetle-nut.
Harítakí,	Terminalia chebula.
Amalaka,	Phyllanthus emblica.
Vibhítaka,	Terminalia Bellerica.
Níliní,	Indigofera Tinctoria.
Chaturaṅgula,	Cassia fistula.
Eraṇḍa,	Ricinis communis.
Pútíka,	Guilandina Bonducella.
Mahávṛiksha,	Euphorbia neriifolia.
Saptachchhada,	Alstonia scholaris.
Arka,	Calotropis gigantea.
Jyotishmatí,	Cardiospermum Halicacabum.

Of these, the roots should be used of the plants mentioned above, up to *káśa*. From *tilvaka* to *pátalá* the bark should be used. The yellow powder of *kampillaka* is used. From *púga* to *eraṇḍa* the fruits are used. The leaves of *pútíká* and *áragbadha* are used. Of the rest the milky juice is employed.

The following medicines act both as purgatives and emetics, or clear both the upper and lower parts of the body, namely,

Kos'átakí,	Luffa amara.
Saptalá,	Stereospermum suaveolens.
S'añkshiní,	Andropogon acicularis.
Devadálí,	Luffa amara, variety of.
Káravelliká,	Momordica charantia.

The expressed juice of these plants should be used.

The following medicines act as errhines :

Pippalí,	Piper longum.
Viḍañga,	Embelia Ribes.
Apámárga,	Achyranthes aspera.
S'igru,	Moringa pterygosperma.
S'iddhárthaka,	White mustard seeds.
S'irísha,	Albizzia Lebbek.
Maricha,	Piper nigrum.
Karavíra,	Nerium odorum.
Vimbí,	Coccinea Indica.
Girikarṇiká,	Clitoria Ternatea.
Kiṇihí,	Variety of Achyranthes aspera.
Vachá,	Acorus calamus.
Jyotishmatí,	Cardiospermum Halicacabum.
Karañja,	Pongamia glabra.
Arka,	Calotropis gigantea.
Alarka,	White variety of ditto.
Las'una,	Allium sativum.
Ativishá,	Aconitum heterophyllum.
S'ṛiñgavera,	Zingiber officinale.
Tális'a,	Pinus Webbiana.
Tamála,	Garcinia Xanthochymus.
Surasá,	Ocimum sanctum.
Arjaka,	White variety of ditto ditto.

Iñgudí,	Balanites Roxburghii.
Meshaśṛiñgí,	Gymnema sylvestre.
Matuluñgí,	Citrus medica, var. acida.
Muruñgí,	Variety of salvadora Persica, or a tree resembling it.
Pílu,	Salvadora Persica.
Játí,	Jasminum grandiflorum.
S'ála,	Shorea robusta.
Tála,	Borassus flabelliformis.
Madhúka,	Bassia latifolia.
Lákshá,	Lac.
Hiñgu,	Assafoetida.
Lavaṇa,	Common salt.
Madya,	Spirituous liquors.
Gos'ákṛidrasa,	Juice of cow-dung.
Gomútra,	Cow's urine.

Of these, the fruits should be taken of the drugs up to *maricha*. From *karavíra* to *arka* the roots should be taken. The bulbs of the drugs from *laśuna* to *śṛiñgavera* should be used. From *taliśa* to *arjaka* the leaves should be employed. The bark of *iñgudí* and *meshas'ṛingí* should be taken. The flowers of the next three drugs should be used and the extracts of the three plants following these last. *Lákshá* and *hiñgu* are resinous exudations. *Lavana* is an earthy matter. *Madyas* are distilled spirituous liquors, and the dung and urine of cows are excretions.

I will now mention the drugs classed as *Sam̲s'amana* or medicines which rectify the deranged state of the humours without increasing the excretions. They are as follows :—

Bhadradáru,	Cedrus Deodara.
Kushṭha,	Saussurea auriculata.
Haridrá,	Curcuma longa.
Varuṇa,	Crataeva religiosa.
Meshas'ṛingí,	Gymnema sylvestre.
Balá,	Sida Cordifolia.

Atibalá,	Sida rhombifolia.
A'rtagala,	Blue variety of Barleria cristata.
Kachchhurá,	Alhagi Maurorum.
Sallakí,	Boswellia serrata.
Kuverákshí,	Stereospermum suaveolens.
Víratarú,	Terminalia Arjuna.
Sahachara,	Yellow variety of Barleria cristata.
Agnimantha,	Premna serratifolia.
Vatsádaní,	Tinospora cordifolia.
Eraṇḍa,	Ricinus communis.
Aśmabhedaka,	Coleus Amboinicus.
Alarka,	White variety of Calotropis gigantea.
Arka,	Calotropis gigantea.
S'atávarí,	Asparagus racemosus.
Punarnavá,	Boerhaavia diffusa.
Vasuka,	Salt from Sambar lake.
Vasira,	Sea salt.
Kánchanaka,	Orpiment.
Bhárgí,	Clerodendron Siphonanthus.
Kárpásí,	Gossypium herbaceum.
Vṛis'chikálí,	Tragia involucrata.
Pattura,	Alteranthera sessillis.
Vadara,	Zizyphus Jujuba.
Yava,	Hordeum hexastichum.
Kola,	Zizyphus Jujuba.
Kulattha,	Dolichos uniflorus.
Vidárigandhádi,	The medicines included under the class called Vidárigandhádi.
Panchamúlyau,	The medicines included under the two classes called Adya Panchamúlyau.

The medicines mentioned above rectify deranged conditions of the air in the system and are classified as Vátasaṃśamana varga.

Chandana,	Santalum album.
Kuchandana,	Pterocarpus santalinus.

Hṛivera,	Pavonia odorata.
Us'íra,	Andropogon muricatum.
Manjishṭhá,	Rubia cordifolia.
Payas'yá,	Cleome felina.
Vidárí,	Batatas paniculuta.
S'atávarí,	Asparagus racemosus.
Gundrá,	Panicum uliginosum.
S'aivála,	Blyxa octandra.
Kahlára,	Nymphœa Lotus. White variety.
Kumuda,	Nymphœa Lotus.
Utpala,	Nymphœa stellata.
Kadalí,	Musa sapientum.
Kandalí,	Seeds of Nelumbium speciosum.
Dúrvá,	Cynodon Dactylon.
Múrvá,	Sanseviera zeylanica.
Kákolyadi,	The medicines included in the class called Kákolyádi.
Nyágrodhádi,	The medicines included in the class called Nyágrodhádi.
Tṛiṇapañchamúla,	The five sorts of grasses included under this class.

These medicines rectify deranged bile and are classed as *Pitta sam̲s'amana varga.*

Káleyaka,	Berberis Asiatica.
Aguru,	Aquilaria Agallocha.
Tilaparṇí,	Pterocarpus santalinus.
Kushṭha,	Saussurea auriculata.
Haridrá,	Curcuma longa.
S'ítas iva,	Foeniculum vulgare.
S'atapushpá,	Peucidanum Sowa.
Saralá,	Pinus longifolia.
Rásná,	Vanda Roxburghii.
Prakírya,	Guilandina Bonducella.
Udakírya,	Pongamia glabra.
Iñgudí,	Balanites Roxburghii.

Sumanaḥ,	Jasminum grandiflorum.
Kákádaní,	Capparis sepiaria.
Láṅgalakí,	Gloriosa superba.
Hastikarṇa,	A variety of Butea frondosa.
Munjátaka,	A small flowerng plant which cannot be identified.
Lámajjaka,	Andropogon Iwarancusa.
Vallikaṇṭaka-panchamúlyau,	The two classes of Panchamúla called Valli and Kaṇṭaka Panchamúla mentioned in the last chapter.
Pippalyádi,	The drugs included under this class.
Vṛihatyádi,	The drugs included under this class.
Mushkakádi,	The drugs included under this class.
Vachádi,	The drugs included under this class.
Surasádi,	Ditto ditto ditto.
Áragvadhádi,	Ditto ditto ditto.

The drugs mentioned above rectify deranged phlegm and are called *S'leshma saṃśamana varga*.

Medicines should be prescribed after a due consideration of the condition of the digestive fire, strength and constitution of the patient and the character of his illness. If more medicine be taken than is required by the nature of the disease, some other disease is induced, after the cure of the ailment treated. If more medicine is administered than what the digestive fire can properly digest, then the medicines remain undigested, there is flatulence and a sense of weight in the stomach, or they are not digested. If more medicine be given than the constitution of the patient can bear, there occur langour, fainting and mental excitement. The abuse or administration in large doses of alterative medicines nullifies the good effects of purifying medicines, previously given; on the other hand if alterative medicines are used in small doses, they do not produce any effects. Hence these medicines should be given in suitable and adequate doses only, after due consideration of the strength and digestive fire, etc. of the patient. Here are some verses :—

When a patient becomes weak, from derangement of the humours, in a disease which is curable by the use of alterative medicines, these medicines should be given in small doses. When the derangement of the humours is rectified, and the bowels act mildly, it is not necessary to look to the strength of the patient; for if a patient remains weak after the cure of his disease, he may be considered free from the deranged state of the humours. At the commencement and the middle stage of diseases, decoctions of medicines should be given in doses of thirty-two tolás or half a seer; powders should be given in doses of two tolás, pastes of medicines should be given in doses of one tolá.*

When the deranged humours rectify themselves of their own accord and the bowels act mildly, it is not necessary to use purifying medicines, such as purgatives, emetics, etc.; in such cases, the use of alterative medicines alone, is sufficient to cure the disease, even if the patient is weak.

CHAPTER XL.

ON THE TASTES, QUALITIES, ENERGY, ETC. OF OBJECTS.

Some writers maintain that material objects are of the first importance, inasmuch as they are permanent or lasting. For, surely, objects are permanent, and not their tastes or other qualities; thus the taste that exists in an unripe fruit does not continue in it, in its ripe condition. Secondly, material objects are constant or eternal, while their properties are liable to changes: thus medicines when reduced to a paste or to some other form of preparation, may retain their natural tastes and odours or these may be altered. Thirdly, material objects constantly maintain their natural state: thus a mineral is always a mineral and does not become anything else. Fourthly, material objects can be appreciated by the five senses, but not so their tastes, energies, etc. Fifthly, they form the receptacles in which taste and other properties reside. Sixthly, material objects are first named in ordering a prescription and not their tastes, etc.: thus one says, take the roots called *Vidári gandhádi*, powder them and boil, and not such roots as possess the tastes of these plants. Seventhly, the *S'ástras* testify to the superiority of material objects, thus in the *S'ástra*, objects are first spoken of in the description of the composition of prescriptions; for example, these commence thus, take of *mátulańga*, *agnimantha*, etc. and not as, take of their tastes or other properties. Eighthly, tastes and other properties of material objects depend on the objects: thus in young vegetables, there is unripe taste, but in old or full grown vegetables there is their perfect or ripe taste. And ninthly, even one portion of a drug or article can cure disease, as for example, the milky juice of *mahávṛiksha* (*Euphorbia neriifolia*). Hence material objects are superior. The properties of objects act in concert with the objects, and when a certain form of treatment cures a disease, it is said that the properties of the remedies employed acted in concert with the plan of treatment adopted in the case.

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* A tolá is equal to 180 grains.

Others say, this is not correct; and that taste is superior, as stated in the *Ágama* or Veda: for the Vedas constitute the *S'ástras* and in this *S'ástra* there is the following statement regarding *rasas* or tastes. The nutritive power of the food of living beings depends on the *rasas*, and it is thus that food maintains life. Again, teachers, while instructing their pupils, talk of the *rasas*: thus they speak of the sweet and saline tastes checking or lessening the humour air. In thinking of a medicine, one thinks also of its taste: thus we talk of a sweet thing.

The sayings of *ṛishis* or learned sages, which are as authoritative as the Vedas, also prove the superiority of the *rasas*: thus they say, some sweet things must be procured for the sacrificial ceremony: hence *rasa* or taste is superior. By its taste the property of a thing is ascertained and named. The properties of tastes will be elsewhere described.

Others say this is not true; the energy of material objects is superior, for the effects of medicines are produced by their energy: for example, the following classes of medicines produce their effects on the system through their energy, namely, purifiers of the upper and lower parts of the body, that is, medicines which act both as emetics and purgatives, alteratives, astringents, promoters of the digestive fire, *prapíḍana* or medicines which expel secretions, *lekhana* or medicines which thin the tissues or reduce corpulency, *vṛim̱haṇa* or medicines which promote nutrition; and increase corpulency, *rasáyana* or medicines which remove and prevent the effects of age and increase the vigour of health persons, *vájíkaraṇa* or medicines which increase the sexual power, *s'vayathukara* medicines which cause inflammation or swellings, *vilayana* or liquifacients, *dahana* or caustics, *dáraṇa* or rubefacients, *madana* or medicines which intoxicate, *práṇaghna* or poisons which destroy life,and *vishapras'amana* or antidotes.

All these classes of medicines produce their specific effects by their *víryya* or energy. From the heating and cooling qualities of the world, energy is also of two sorts, namely, heating and cooling. Some say there are eight sorts of energy, namely, *ushma* or heating, *śíta* or cooling, *snigdha* or emmollient, *ruksha* or drying, *vis'ada*, clearing or purifying, *pichchhila* or lubricating, *mṛidu* or mild, *tíkshṇa* or sharp. These various sorts of energy by their own properties produce their effects, in spite of or after overpowering the properties of the *rasas*. Thus, for example, the combination of drugs called *vṛihat panchamúla*, although possessing the astringent taste and afterwards the bitter taste, lessens air from its possessing the heating energy. *Kulattha* (*Dolichas uniflorus*), *kas'áya* (*Calosanthes Indica*), *kaṭuka* (*Picrorrhiza Kurroa*) and *paláṇḍu* (onions) lessen air from their oily and emmollient nature. Sugarcane juice increases air from its sweetening and cooling energies. *Pippalí* (*Piper longum*) from its slightly cooling energy decreases bile, notwithstanding its bitter taste. *Kákamáchí* (*Solanum nigrum*) with bitter taste, and fish with sweet taste, increase bile from their heating energy. *Múlaka* (radishes), although having the acrid taste, increases phlegm from its cooling energy. *Kapittha* (*Feronia elephantum*), although possessing the acid taste, and honey the sweet taste, reduce phlegm owing to their drying energy. These few instances are cited as proofs of the above statement. Here are the following verses:

Those tastes which decrease air, cannot influence it if they are conjoined with the properties of dryness, lightness and coolness; those tastes which decrease bile, cannot produce this effect if they are conjoined with the qualities of sharpness, heat and lightness; and those tastes which decrease phlegm cannot influence this humour if they are accompanied by the qualities of oiliness, heaviness and coolness, such a combination only increases phlegm; hence the energy of material objects must be said to be superior.

Others say this is not correct, and that the result of digestion of drugs is of primary importance, because material objects, if properly digested, produce good effects, but if imperfectly digested, cause evil effects. Some say every taste is produced by digestion, but others maintain that the sweet, acid and acrid tastes only are produced after digestion, but this is not very reasonable, for, on considering the properties of objects and the writings of the *S'ástras*, it becomes apparent, that the acid taste cannot be produced by digestion, for acidity is produced by the consumption of bile from deficiency of the digestive fire. If the production of acidity from digestion is acknowledged, then it must be admitted also that the saline taste can be turned into some other taste after digestion, but this is not the case, for the saline taste, after digestion, is only produced by the digestion of phlegm. Some say that the sweet taste remains sweet after digestion, and the acid taste remains acid after digestion, and in this way all the tastes remain unaltered by digestion. For instance, milk which has a sweet taste preserves its sweetness when boiled in an earthen boiling pot, and rice, barley, the pulse called *Mudga* (*Phaseolus mungo*), etc., when scattered on the ground, do not even in the distant future change their nature, that is, the crops produced by these seeds inherit their qualities. Some maintain that the weak tastes are subject to, or follow the stronger tastes. Thus there are numerous unsettled opinions on this subject and it is necessary to come to some fixed conclusion on it, and this is our conclusion :

The *S'ástras* mention two sorts of digestion, namely, sweet and acrid; of these the sweet digestion is heavy, and acrid digestion is light. Earth, water, fire, air and ether may b divided into two classes according to their properties, namely, light and heavy, thus earth and water are heavy and the other three are light. Here are some verses :

When during the digestion of material objects, the properties of earth and water exist in large proportion, the result of the digestion is sweet, but when fire, air and ether predominate, the result is acrid digestion. The arguments of those logicians who maintain the superiority of material objects, tastes, energy, or the effects of digestion respectively, have been already mentioned in detail, and pandits, or wise men, will acknowledge the superiority or importance of all these. When articles are taken internally, the humours are increased or decreased partly by the objects themselves, and partly by their tastes, energies and effects after digestion. There is no digestion without energy, and energy cannot exist without taste, and taste is not to be found except in objects, therefore material objects are primary or superior. As the living being and its containing body are dependent on each other, so in the same way, without material objects there can be no tastes, and there are no objects without tastes. It has been already stated that by energy is meant the eight properties of coolness, heat, dryness, etc. and these eight sorts of energies reside in material objects ; these energies cannot be derived from the *rasas* or tastes which are powerless. Material objects are digested in other material objects alone ; the six tastes are not thus digested ; hence material objects must be superior, the tastes, energies and the effects of digestion being dependent upon material objects. Naturally, well-known medicines cannot be subjects of discussion or deliberation. Wise men will use them according to the directions in the *S'ástras.* The characters and effects of noted or famous medicines are naturally well known. Wise men should not on any account try to prove medicines, that is, try by experiments to find out their properties, because there are a hundred reasons, for which such purgative medicines as *amvashṭá* (*Stephania hernandifolia*), etc., cannot produce their cathartic effects. Therefore, wise men, without enquiring for reasons, will act according to the dictates of the *S'ástras.*

CHAPTER XLI.

PROPERTIES OF MEDICINES WITH REFERENCE TO THEIR PHYSICAL CHARACTERS.

All material objects are produced from a combination of the five elements, namely, earth, water, fire, air and ether. They are named, however, from the elements which predominate in them : thus an object is said to be of earthy character, if the element earth is in excess in it, and so with the other elements, they are called fiery, airy, watery or ethereal, according as fire, air, water or ether prevails in them.

Earthy objects have the properties of thickness, density, compactness with interstices, heaviness, firmness, roughness, weight, hardness, strong smell, slight astringency, and generally the sweet taste. They increase strength and firmness, and have a tendency to fall downwards.

Watery objects or articles in which water predominates, have the properties of coolness, moistness, oiliness, heaviness, weight, mobility, compactness with interstices, softness, and smoothness of surface; they have abundance of juice, and slightly the astringent, acid, saline and sweet tastes. They increase the lubricity of the body and its secretions and excretions, strengthen the joints, and promote cheerfulness.

Articles which have the element of fire in excess, have the properties of heat, pungency, thickness, dryness, roughness, lightness, and clearness. They have a great variety of shapes and properties and have slightly acid, saltish, and acrid tastes and have a tendency to ascend upwards. They act as caustics suppurants, rubefacients and calorifacients. They brighten the appearance, splendour and colour of the skin.

Articles with a predominance of air in them, have the properties of thinness, dryness, roughness, coldness, lightness, and clearness. They cause various sorts of sensations to the touch, they are slightly bitter and particularly astringent. They produce clearness, lightness, exhaustion, dryness and irritability of the body.

Articles with predominance of ether in them, have the properties of fineness, thinness and mildness. They have aphrodisiac properties and undeveloped and imperceptible tastes, and are very sonorous. They produce mildness, porosity and lightness of the body.

By these characters all articles or objects in this world may be classified as medicines, and if they are endowed with energy and other properties, and are employed according to reason and necessity, they prove serviceable in the cure of diseases. The period during which these medieines act is called *kála* or time; their effect is called *karma* or action, the body in which they act is called *adhikaraṇa* or subject, the property by which they effect cures is called *víryya*, or energy, the mode in which they act is called *upáya* or means, and the result they produce, is called the *phala* or effect of medicines.

Of these medicines, purgative drugs contain an excess of earth and water. Articles containing excess of earth and water are heavy and owing to their weight, they have a tendency to fall downwards. It would seem therefore that they act as purgatives owing to their tendency to go downwards.

Emetics have more of the properties of air and fire. Both air and fire are light, and owing to their lightness have a tendency to ascend upwards; it would seem they cause emesis from their tendency to ascend upwards.

Those medicines which act both as purgatives and emetics possess in abundance both the properties of going upwards and downwards. In the same way, medicines belonging to the class *Sam̱śamsana* (alteratives) possess in abundance the properties of ether, and astringents contain in abundance the element air, and they act as astringents owing to the drying power of air. Medicines, which increase the digestive fire, contain in abundance the element fire. Absorbents or liquifacient medicines possess in abundance the properties of air and fire, and medicines which promote nutrition possess in excess the properties of earth and water. The effects or actions of medicines are, it seems, produced in the manner stated above. Here are some verses:

The humour air is kept in check or reduced by articles with predominance of earth, fire and water in them. Bile is reduced by articles with excess of earth, water and air, and phlegm is reduced by things with excess of ether, fire and air. Articles with excess of air and ether increase air. Articles with excess of fire increase bile, and earthy and watery substances increase phlegm.

The effects of the predominance of the elements in material objects are thus specified. With this knowledge, they should be used in the treatment of diseases, either in combination of two or of more drugs at a time.

The qualities of coldness, heat, oiliness, dryness, softness, sharpness, lubricity and clearness of objects are called their *Víryya* or energy. If an article contains in excess the element of fire, then it has the hot and sharp energies. When the watery element prevails the cold and lubricating energies are found. In earthy and watery objects the oily energy exists. Objects with excess of ether and water have the softening energy. Air causes the drying energy and when earth and air predominate they produce the clearing energy.

Heavy and light digestions have been already described. The hot and oily energies remove air. The cold, mild and lubricating energies remove bile, and the sharp, dry and clear energies destroy phlegm. Heavy digestion checks the humours, air and bile, and light digestion reduces phlegm. The mild, cool and hot qualities are known by the sense of touch; the lubricating and clear qualities are known by touch and sight; the oily and dry qualities are known by sight; heat and cold are known by their causing pain or pleasure. In heavy digestion the fœces and urine are obstructed or become scanty, and there is derangement of phlegm. In light digestion the urine and fœces are obstructed, and thence there is derangement of air. The qualities of objects correspond to their tastes; as for example, the sweet taste is of heavy digestion and of earthy quality; the sweet and oily properties have the qualities of water.

In the classification of drugs certain qualities have been attributed to them, they exercise the same effects on the human body. The growth, stability and decay of bodies are owing only to the qualities of external objects.

CHAPTER XLII.

ON THE SPECIAL DESCRIPTION OF THE RASAS OR TASTES.

From the five elements ether, air, fire, water and earth are produced the five properties of sound, touch, form, taste and smell, with the addition of one quality to each successive element, in the order in which they are mentioned. Thus from ether is produced sound. Air causes sound and touch. Fire causes sound, touch and form. Water causes sound, touch, form and taste. and lastly, earth produces sound, touch, form, taste and smell, therefore the quality of taste owes its origin to water. Owing to mutual co-existence, aid and mixture, parts of all the elements are found in all articles, but they are classified or used according to the predominance of any particular element, or quality in them. Taste produced from water after admixture with the other elements, after maturation or digestion, is divisible into six varieties, namely, sweet, acid, astringent, saline, acrid and bitter. These by various combinations form sixty-three varieties of tastes.

The sweet taste is produced by excess of the earthy and watery elements. The acid taste is produced from excess of the earthy and fiery elements. The saline taste is owing to excess of water and fire. The acrid taste is owing to the preponderance of the elements, air and fire. The bitter taste is due to excess of the elements, air and ether, and lastly, the astringent taste is due to excess of earth and air. The sweet, acid, and saline tastes decrease the humour air. The sweet, bitter and astringent tastes decrease bile, and the acrid, bitter and astringent tastes diminish phlegm. Air is neutral or has its own properties. Bile is hot, and phlegm is cold. These tastes increase properties analogous to their own, and decrease or antagonize those opposed to them.

Some sages say, that owing to the heating and cooling properties of all material objects, the six tastes may be grouped into two classes, namely, hot and cool. The sweet, bitter and astringent tastes are said to be cool, and the acrid, acid and saline tastes, to be hot. The first three are oily and heavy, and the last three are light and dry. *Saumya* means cold and *ágneya* means hot. Coolness, dryness, lightness, clearness and obstruction are the characters of air. The astringent taste is synergist to it, that is, it produces the same sort of effects. The coolness of the astringent taste causes the coolness of air, its dryness causes the dryness of air, its lightness the lightness of air, its clearness produces the clearness of air, and its astringency causes the astringency or constipating quality of air.

Heat, sharpness, dryness, lightness, and clearness are the properties of bile. The acrid taste produces these effects. The heat, sharpness, dryness, lightness and clearness of the acrid taste produce these qualities in bile. Sweetness, oiliness, heaviness, coolness and lubricity are the properties of phlegm. The sweet taste produces these qualities of phlegm. The sweetness, oiliness, heaviness, coolness and lubricity of the sweet taste produces these qualities in phlegm. The acrid taste is antagonistic to phlegm. The acridity of the acrid taste destroys the sweetness of phlegm, its dryness destroys the oiliness of phlegm, its lightness, its heaviness, its heat, its coolness, and its clearness destroys the mucilaginousness of phlegm. This much is said by way of example.

I will now relate the characters or signs of the *rasas* or tastes. That taste, which causes satisfaction, delight, and satiety, and which preserves life, causes a sense of pasty lining in the mouth and increases phlegm, is called the *madhura* or sweet taste. That taste, which renders the teeth over-sensitive, causes discharge of fluid from the mouth and inclination for eating, is called the *amla* or acid taste. That taste, which causes a burning sensation in the tip of the tongue, gives rise to agitation or distress and causes headache and discharge of fluid from the nose, is called the *kaṭu* or acrid taste. That taste, which causes a drying sensation in the throat, clearness of the mouth, inclination for food and delight, is called *tikta rasa* or the bitter taste. That taste, which causes dryness of the mouth, stiffness of the tongue, closure of the throat, a sense of drawing and distress in the region of the heart, is called the *kasháya rasa* or the astringent taste.

I will now describe the properties of the different *rasas* or tastes. The sweet taste increases the chyle, blood, flesh, fat, bones, marrow, *ojas* or the vital principle, semen and milk; it increases the hair, improves the complexion and strengthens the body and it heals wounds and ulcers, and purifies the chyle and blood. This taste is beneficial to the young and the old, and to declining or consumptive people. It is liked by the large black bees called *shaṭpada* and by ants. It relieves thirst, fainting, and heat of the body and it cheers the six senses. It causes intestinal worms, and increases phlegm. Although endowed with so may properties, yet if the sweet taste alone is indulged in

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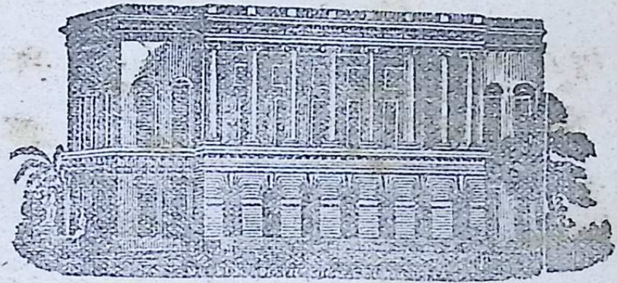

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excess, it gives rise to cough, asthma, flatulence, nausea, sweet taste in the mouth, loss of voice or hoarseness, intestinal worms, bronchocele, tumours, elephantiasis of the leg, diseases of the eye and sense of fullness in the region of the bladder and the anus.

The acid group is carminative and digestive, it expels wind from bowels, promotes secretion in a natural order, produces a sense of warmth, or burning in epigastrium, is cooling externally and is generally agreeable, it accumulates secretive impurities in e tissues. Though possessed of these qualities, in excess, it causes essive sensibility in the teeth, or makes them tender, causes closure of the eyes and horripillation; it absorbs phlegm and renders the body flaccid or flabby. It brings on suppuration in those parts of the body which are wounded, struck, burnt, bitten, broken, swollen, diseased, fallen, or deviated from their natural position, attacked with erysipelas, lacerated, divided, punctured, or contused, and owing to the heating nature of acids, there occurs a sense of heat or burning in the throat, chest and precordial region.

The saline group purifies tissues, is digestive, and relaxing. It separates impurities, accumulates excretive matters in the system, causes the body to lose its tone or relaxes, and is heating. It is antagonistic to all the other tastes, it clears the outlets of the system, and produces softness of all the structures of the body. Though possessed of all these properties, its excess, causes itching, eruptions, prurigo, urticaria, œdema, discolouration of the skin, impotence, impairment of organs or oppression of the senses, ulceration in the mouth and eyes, hæmorrhage, leprosy, or blood poisoning, acidity, etc.

The pungent group increases digestive power, promotes digestion, causes inclination for food, purifies the body, improves tissues and prevents corpulence. It relieves lassitude, phlegm, intestinal worms, effects of poisons, skin diseases and itching or pruritus. It causes relaxation of the ligaments of the joints and of the system in general. It diminishes milk, semen, and fat.

Though possessed of all these qualities, its excess causes mental aberration, hallucination, dryness or inflammation of the throat, palate, and lips. It also causes heat of body, lassitude or loss of strength, trembling or rigors, sensation of pins or shooting pains, and purging. It produces pain from deranged air in the hands, feet, sides, back, etc.

The bitter group separates humours, it is appetizing, digestive, and purifying. It relieves or cures itching or pruritus, urticaria, thirst, fainting and fever. It improves the secretion of th milk in the breast and reduces the quantity of fœces, urine, pe-spiration, fat, marrow and pus. Although possessing th qualities, in its excess, the bitter taste causes partial insensibility, inability to move nape of the neck, spasms, convulsions, facial paralysis, headache, mental aberration, lancinating, cutting, and piercing pains, sensation of pins, running of bowels and a clammy mouth or a bad taste in the mouth.

The astringent group is styptic, and favours the healing of ulcers, checks all sorts of discharges, separates impurities from tissues, reduces corpulence, and superfluous moisture, it renders them firm, and compresses or contracts them. Although possessing these qualities, yet this astringent taste if used to excess, causes pain in the heart, dryness of the mouth, tympanites, loss of speech, wry-neck, tremors in the limbs, noise in the ears, contraction of muscles, convulsions, etc.

I will now describe the articles possessing these different tastes. The following are the principal articles having the sweet taste, namely, the medicines included in the class called *kákolyádigaṇa;*—kakali (Cocculus Indica), milk, clarified butter, fat, the varieties of paddy called *śáli* and *shashṭika,* barley, wheat,

Másha,	pulse of Phoseolus Roxburghii. W. A.
S'ṛiñgáṭaka, = Paniphal,	fruit of Trapa bispinosa, Roxb.
Kaśeruka, = kesur,	tubers of Scirpus Kysoor, Roxb.
Trapusha, = sosa,	fruit of Cucumis sativus, Linn.
Ervváruka,	fruit of Cucumis Melo, Linn, Syn. Cucumis momordica, Roxb.

Karkáruka, = Tarambuja,	a variety of ditto ditto.
Alávu,	fruit of Lagenaria vulgaris, Sering, syn. Cucurbita Lagenaria, Wild.
Kálinda, = Karkati or kakur,	fruit of Cucumis Mellow, syn. Cucumis utilissimus, Roxb.
Kataka, = Neermally,	fruit of Strychnos potatorum.
Gilodva, = Jambera,	a variety of citron, Linn.
Piyála,	fruit of Buchanania latifolia, Roxb.
Pushkaravíja, = Podma,	seeds of Nelumbium speciosum, Linn.
Káśmarí, = Gambhari,	fruit of Gmelina arborea, Linn.
Madhuka,	flowers of Bassia latifolia, Roxb.
Drákshá,	fruit of Vitis vinefera, Linn.
Kharjúra,	fruit of Phœnix sylvestris, Roxb. Wild date palm.
Rájádana,	fruit of Mimusops Indica, D. C. syn. Mimusops Henandra, Roxb.
Tála,	fruit of Borassus flabelliformis, Linn.
Nárikela,	fruit of Cocos nucifera, Linn. cocoanut palm.
Ikshuvikára,	juice or products of sugarcane, Saccharum officinarum, Linn.
Balá, = Berela,	Sida cordifolia, Linn.
Atibalá,	Sida rhombifolia, Linn.
Átmagupta, = Alkusí,	Mucuna pruriens, D. C. syn. Carpopogan pruriens, Roxb.
Vidárí, = Bhumikumra,	Batatus paniculata, Choisy.
Payásyá,	Oxystelma esculentum.
Gokshuraka,	Tribulus terrestris, syn. Trabulus Lanagenosus, Linn.
Kshíramoraṭa, = Murva,	Sanseviera zeylanica, Wild, syn. Sansiviera Roxburghiana, Schult.
Madhúliká, = Mauri	Fœniculum vulgare, Fennil seeds.
Kushmáṇḍa,	Benincassa cerifera, syn. Cucurbita pepo, Roxb.

The following articles constitute in short the *amlavarga* or acid class :

Dáḍima,	fruit of Punica granata, Linn.
A'mlaka,	fruit of Phyllanthus Emblica, Linn.
Mátuluñga,	Citrus Medica, var. acida, Linn.
Amrátaka,	Spondias mangifera, Pars, Hog plum.
Kapittha,	Feronia elephantum, Wood apple tree.
Karamarda,	Carissa Carandas, Linn, syn. Carissa Congesta, Wight.
Vara = Vadara = Misheya = Sowa,	Peusedandum Sowa.
Kola,	Zizyphus Jujuba.
Práchínámlaka,	Flacourtia cataphracta.
Tintiḍíka,	Tamarindus Indicus, Linn.
Kos'ámra,	Mangifera sylvatica, Roxb.
Bhavya, = Chalta,	Dillenia Indica, Linn. syn. Dellenia Speciosa.
Párávata, = Tenduka, Gab.	Diospyros glutinosa, syn. Diospyros Embryopteris, Pers.
Vetraphala,	Calamus Rotang, Linn. fruits of Calamus Roxburghii, Griff.
Lakucha, = Madar,	Artocarpus Lakucha.
Amlavetasa, = chukapalang,	Rumex Vesicarius, Linn. country sorrel.
Dantas'aṭha, = Nagaranga,	Citrus Aurantium.

Dadhi (curdled milk), whey, spirituous liquors, sour gruel, fermented paddy water, fermented barley-water and other forms of acetous fermentation, etc.

The following articles constitute in brief the *lavaṇa varga* or the saline group, namely, rocksalt, sonchal salt called *kálá nimak*, sochal in Hindustani, a prepared salt called *viṭlavaṇa*, sea salt, Roumoka, a kind of salt according to some authorities brought from a mountain in Ajmere but in fact procured from a salt lake near the town of Sam̱bher about twenty miles west of

Jaynagar the district of Rouma or Sambher, Sambar lake salt, boiled salt, salt obtained from the ashes of the green spikes of the barley, saline efflorescence from Reh-land, fuller's-earth, a native carbonate of soda.

The following articles form in brief the *kaṭuka varga* or the pungent group, namely—

The medicines included in the classes *pippalyádi varga* and *surasádi gaṇa.* Surosa = Nirgundi = Nisinda (Vitex Negundo, inn).

S′igru,	Moringa pterygosperma, syn. Hyperanthera moringa, Willd.
Madhu s′igru,	Red variety of Moringa pterygosperma.
Múlaka,	Raphanus sativus, garden radish.
Lasuna, = Rosanaka,	Allium sativum, garlic.
Sumukha, = Tulasi,	White variety of Ocimum sanctum.
S′ítas′iva, = Karpura,	Cinnamomum camphora.
Siva, = Krishna Dhatura,	Datura metel, also Datura Fastuosa.
Kushṭha,	Saussurea auriculata.
Devadáru,	Cedrus Deodara, syn. Pinus Diodara
Hareṇuka, = Renuka,	Piper aurantiacum.
Avalgujaphala, = Somraji,	Vernonia anthelmintica.
Chaṇḍa, = Sankhapuspi,	Canscora decussata, syn. Pladera decussata.
Guggulu,	Gum resin of Balsamodendron Mukul
Musṭa,	Cyperus rotundus.
Láṅgalakí,	Gloriosa superba.
S′ukanás′a, = Sonaka,	Calosanthes Indica.
Vaka,	Sesbenia grandiflora, syn. Aeschynomene grandiflora.
Pílu,	Salvadora persica, syn. Salvadora Indica.

The medicines included in the class, called *sálasárádi,* are also mostly acrid.

Sala	Shorea Robusta.

The following drugs are classed as the *tikta varga* or bitter class of medicines, namely, the medicines included in the classes called *áragvadhádi* and *gúḍúchyádi.*

Áragvadha,	Cassia fistula, syn. Cathartocarpus fistulapus.
Gúdúchi,	Tinospora cordifolia, syn. Menispermum cordifolium.
Maṇḍukaparṇí,	Hydrocotyle Asiatica.
Vetra-Karira=Unblown blossoms of Vetra,	Calamus rotang, syn. Calamus Roxburghii.
Haridrá,	Curcuma longa.
Dáruharidrá,	Berberis Asiatica, D. C. also Berberis Aristata D. C.
Indrayava,	Seeds of Holarrhena antidysenterica.
Varuṇa,	Cratœva religiosa, syn. Capparis trifolia.
Svádukaṇṭaka, = Gokshura,	Flacourtia Mamontchi.
Saptaparṇa,=saptachada = chatim,	Alstonia scholaris, syn. Echites scholaris.
Vṛihatí = Byakur,	Solanum Indicum.
Kanṭakárí,	Solanum Xanthocarpum.
S'ankhiní,=chorpushpi = Chorkanta,	Canscora decussata, Andropogon acicularis, Ritz.
Dravantí,=Mushikaparni	Salvinia Cucullata.
Trivṛit,	Ipomœa Turpethum, syn. Convulvulus Turpethum.
Kṛitavedhana,=Koshataki,	Luffa amara.
Karkaṭaka,	Momordica mixta.
Káravellaka,	Momordica charantia.
Vártáku,	Solanum Melongena.
Karíra,	Capparis aphylla, syn. Capparis sodada.
Karavíra,	Nerium odorum.
Sumanaḥ, = Chameli,	Jasminum grandiflorum, sweet scented labander.

S'ankhapushpi	Canscora decussata, syn. Pladira decussata.
Apámárga, = Apang,	Achyranthes aspera, syn. Achyranthes Bedentata.
Tráyamáṇá,	Ficus heterophylla.
As'oka,	Saraca Indica, syn. Jonesia Asoka.
Rohiṇí,	Picrorrhiza Kurroa
Vaijayantí, = Jayanti,	Sesbania aculeata, syn. Æschynomene sisban
Suvarchalá, = Atasi,	Herpestes Monnieria.
Punarnavá,	Boerhaavia diffusa, syn, Boerhaavia Procumbens and erecta.
Vṛis'chikálí,	Tragia involucrata.
Jyautishmatí,	Cardiospermum Halicacabum.

The following are included in the class called *kasháya varga* or astringent class, namely, the drugs included in the classes called *nyagrodhádi*, Nyagrodha = Vata (Ficus Bengalansis, Linn, syn. Ficus Indica, Roxb.), *amvasṭádi*, Amvastha = Patha = Akanadi (Stephania hernandifolia, Walp, Syn. Cissampelos hernandifolia, Linn.), *priyangvádi*, Priyangue (Aglaia Ruxburghiana W. A.) and *rodhrádi*, Rodhra = Lodhra, (Symplocos Racimosa, Roxb.) The three myrobalans,

S'allakí,	Boswellia serrata, Coblier.
Jambu,	Eugenia Jambolana, syn. Syezygium Jambolanum, W. and A.
A'mra,	Mangifera Indica, Linn.
Vakula,	Mimusops Elengi, Linn.
Tinduka,	Diospyros embryopteris, Pers, syn. Diospyrus Glutinosa.
Kataka s'áka,	Leaves &c. of Strychnos potatorum, clearing nut tree.
Pásháṇa bhedaka, = Pathorchur,	Coleus amboinicus, syn. Coleus aromaticus.
Vanaspatiphala,	Stereospermum suaveolens.

Most of the medicines included in the class called *sálasárádí.*

Kuruvaka,	Barleria cristata.
Kovidáraka,	Bauhinia variegata.
Jívantí,	Cælogyne ovalis.
Chillí = Lodhra,	Chenopodium (species). Symplocus Racemosa.
Pálankyá,	Beta maritima, syn. Beta Bengalensis.
Sunishaṇṇaka,=sunsunia.	Marsilea quadrifolia, Linn.
Nívárakádaya, = Uridhan &c.	Wild variety of Oryza Sativa other grains.
Mudgádaya,	Phaseolus Mungo and other puls

These *rasas* or tastes being differently combined turn out to be sixty-three in number. Thus the combinations of two *rasas* form fifteen, the combinations of three *rasas* form twenty, the combinations of four *rasas* form fifteen, the combinations of five *rasas* form six, so each taste or Rasa forms six, and lastly the combinations of all the six *rasas* form one. The utility or necessity of this classification will be explained elsewhere.

The six *rasas*, or tastes after being used, are controlled or kept in subjection by the strong and healthy, as the deranged humours are controlled by the strong.

CHAPTER XLIII.

On emetics.

Of all emetic substances and fruits, *madana* (fruit of *Randia dumetorum* is the best. A handful powder of sun-dried *madana* flowers mixed either with the decoction of *Pratyak pushpi* = *Apamarga* = Apang (*Achyranthes aspera* Linn. *Syn Achyranthes Bedentata* Beor) or *Sadá pushpí* = Arka = Red Akand (*Calotropis gigantea* or procera, R, BR, syn *Asclipias Gigantia* Wild) or *Nimba* (*Melia Azadirachta*), together with some rock salt and honey, should be given for a dose to cause vomiting. Or the powder of the unripe fruit of *Randia dumetorum* may be given in the same manner with the decoction of *vakula* (*Mimusops elengi*) or of *romyaka* = Patola (root of *Trichosanthes dioica*) with the addition of some rock salt and honey, the whole mass being made somewhat warm to cause vomiting. Or the powder of the unripe fruit of *madana* may be boiled and given in the form of a gruel made of sesamum seeds = *Tila* and rice called yavague. Another preparation of the fruit of *Randia dumetorum* is as follows: The half-ripe fruits which are neither very green nor yellow should be bound together with the roots of the grass called *kuśa* (*Poa cynosuroides*) and covered with a mass prepared of earth and cow-dung and buried for eight nights in a heap of barley, husk of rice, or of the pulse of *mudga* (*Phaseolus mungo*), or of másha (*Phaseolus Roxburghii*), or of the variety of winter rice called *S'áli* or other varieties of rice. The pulp of the fruits, thus softened, should be extracted and dried in the sun. The dried pulp should be rubbed with curdled milk, honey and meat, and again dried, and preserved in a good clean pot. A handful of this substance should be mixed with a warm decoction of liquorice root, Glycireza Glabra, or of any one of the drugs mentioned in the list of medicines for clearing the upper part of the body from *kovidára* = kanchanada (*Bauhenia variegatam* to *chitra* = chita, *Plumbego Zeylanica*, see Chapter XXXIX), and allowed to infuse for a night. In the morning the patient should be made to sit with his face towards the east, and the physician with his face towards the north, after reciting the under-mentioned *mantra* and thus asking divine help or blessing on this adminstration, should give the mixture to the patient with the addition of some rock salt and honey. The *mantra* is as follows:

May *Brahma, Daksha, Ásviní, Rudra, Indra*, the earth, the moon, the sun, the fire, the winds, the learned sages, the plants, and the elements protect thee. What elixir vitæ is to the *rishis* or sages, what ambrosia or nectar is to the gods, what honey of flowers is to the good chiefs of the serpents, so let this medicine be to you.

Particularly in fever caused by deranged phlegm, in catarrh and in internal abscesses, if no spontaneous or natural discharge of vitiated humours takes place, the above preparation of *madana* phala or fruit together with a thin paste of *Piper longum, vacha, Acarus calamus, Aguru, Aquilaria Agallocha*, Roxb, *Sinapis Alba*, in combination with some salt and hot water, is to be given repeatedly as long no nauseating sensation comes on.

The powder of the pulp of *madana* fruit should be soaked in a decoction of the same fruit and dried in the sun and administered with the same decoction, or the pulp of the fruit may be boiled in milk, and the cream that rises on the top of it should be given with the addition of some honey; or a decoction of the pulp of the fruit in milk may be given as a drink. In hœmorrhages from the intestines, or in heart-burn, *madana phala* should be boiled in milk, and a gruel prepared with this milk and rice called *yavague*, should be given to the patient. When the patient brings up phlegm or suffers from vomiting, fainting fits and orthopnœa, a decoction of *madana phala* in milk, should be prepared as mentioned above and this milk should be curdled, and this curdled milk or the cream that rises on it, should be given to the patient. An oil may be extracted from the pulp of the fruit, in the same way as oil is extracted from marking nuts, *Bhallatoka, Simicarpus Anacardium* this oil should be stirred till it becomes frothy, or in one word, when the oil has been saponified, it should be licked by the patient suffering from diseases that are caused by the vitiated homours, bile and phlegm.

Under similar conditions, that is when diseases are caused by vitiated humours, bile and phlegm; the powder of the sun-dried pulp of the fruit should be given with a decoction of *jívantí* (*Caelogyne ovalis*).

The decoction of the pulp of *madana*, with the paste of medicinal substances included in the group called *pippalyádi*, or the powdered pulp, with a decoction of Rupeeca = red Arka (*calotropis Gigantia* or *Procera* R. Br. syn *Asclepias gigantia*) or *Azadirachta Indica*, acts as a calmative and cures diseases caused by deranged phlegm; or the powdered pulp may be given with a decoction of liquorice root, of Kashmarja = (*gámbhárí Gmelina arboria*) or of grapes (vitus vinifera). The modes of administering *madana phala* have now been described.

The powdered flowers of *jímutaka* = *Devatada* (*Andropogon serratus*) are boiled in milk, and that milk is to be used in preparing that kind of sick diet called yavague which, whe[illegible] prepared, is to be given to people full of hairs, and those who are bald in the head, they should take the cream of that milk and those who suffer from yellow jaundice, they are to take the butter prepared out of that milk which was so curdled. In catarrh, disinclination for food, cough, asthma, jaundice, consumption, and in the diseases occurring in the train of the last mentioned, wine should be given with a decoction of the flowers of *jímutaka* = Devatada (Andropogon Serratus, Retz) Vomiting may also be induced in the same way, with the flowers of *kuṭaja* (*Holarrhena antidysenterica*), *and kritavedhana* = koshataki = Ghoshalata (a variety of *Luffa amara*). The dried flower powder of *Ikshváku* Katutumbi = Tiktálaw (the wild variety of *Lagenaria vulgaris*), being boiled in milk in the above described way, may be given in such cases as cough, asthma, vomiting, bronchitis &c.

The plant *dhámárgava* (*Achyranthes aspera*) may also be used, for causing vomiting like the pulp of *madana* fruit. It is specially useful to act as an antidote for poison, abdominal tumours, ascites, cough, asthma, bronchitis, and such disorders that arise from phlegm. In diseases caused by the vitiated humour air and corrupted humour phlegm, the powdered pulp of the fruit of *kritavedhana* (*Luffa amara*) and long pepper in powder should be given with the decoction of some emetic drugs as a drink, this may be followed by taking snuff of such substances which belong to the group called Utpol or blue lotus (*Nymphœa Cœruba*) and thus produce vomiting. If humours are not packed up anywhere in the system, the sick diet called yavague should be given first and subsequently the process that causes vomiting may be adopted. The drugs described above are the principal emetics, cathartics, and errhines. Here are some verses:

The extent or range of the use of emetic drugs has thus been described. They should be used after due consideration of the disease, its time, and strength of the patient. The knowing physician will administer emetic decoctions, juices, pastes, and powders with the five forms of food called *lehya*, *peya*, etc., that is, articles licked, drunk, chewed, etc.

CHAPTER XLIV.

ON PURGATIVE MEDICINES.

The root of the red variety of *trivrit* (*Ipomœa turpethum*,) R. Br. syn. (*Convolvulus turpethum*) is the best of all purgative roots; the bark of *Telvoka* = *Lodhra* (*Symplocos racemosa*) is the best of all purgative barks; Haritaki (Terminalia chebula, Retz) is the best of purgatives amongst fruits; of oils, the olium recine, castor-oil is the best of purgatives; of all juices, the expressed juice of the leaves of *káravelliká* (*Momordica charantia*, Linn) is the best purgative juice ; and of all milky juices, the milky juice of *sudhá* (*Euphorbia neriifolia*) is superior. These are the chief purgative medicines. I will now describe, in due order, the modes of administering these medicines.

Out of the above list of drugs, some are particularly useful under certain circumstances where either vomiting or purging or the taking of snuff is necessary. The different actions of the various emetic drugs that have been dwelt upon at some length should be carefully considered by the learned physician according to the time, and nature of the disease, the condition of the patient, his strength &c. In the mode of using any of these medicines, the informed physicians should know how to administer the emetic drugs, namely, either to administer their decoctions or their juices or their powder in conjunction with different articles of food in the form of a drink or of a sticky drop that is licked.

If purging is necessary in the class of disorders caused by vitiated humour, air, the patient should take the powder of *trivṛit*-root (*Ipomœa turpethum*) perfect in growth and harmless, with the addition of rock-salt and ginger, and with some acids. Some purgative juices may be added to the draught to increase its efficacy. In bilious complaints, that is, where the liver is not acting properly, if purging is necessary, the above powder, together with some treacle and some other sweet vehicle in combination with some milk should be prescribed as a drink. In diseases caused by deranged phlegm, *trivṛit* powder should be taken with the addition of the juices of *guḍuchí* (*Tinospora cordifolia*), *arishṭa* (*Melia Azadirachta*), *triphalá*, (the three myrobolans), the powder of the three pungents, namely, Soonta, dried Rhizome of *Zingiber officinalis*, long-pepper and black-pepper and cow's urine as the vehicle; or the powdered *trivṛit* may be taken, being made into a paste, with the addition of the three myrobolans and the three pungents (Soonta, dried Rhizome of *Zingiber officinalis*, *Piper longum* and *Piper nigrum*, along with old treacle. Or the following preparation of *trivrit* may be used: take of the juice of the root of *trivṛit* two seers, nearly four pounds; of *trivṛit*-root pounded to a pulp, thirty-two tolahs, more or less one pound; of rock-salt and Soonta, (dried Rhizome of *Zingibher officinalis*) two tolahs each, that is, each nearly an ounce; these are to be pressed together and mixed up and boiled down to a thick consistency, till the watery portion is nearly evaporated, and the mass so prepared should then be used. One part of this mass with half its weight of Soonta, dried Rhizome of *Zingiber officinalis*, should be given with the addition of rock-salt in cow's urine, this is another way of dealing with the above disorder. Again the next method of treating is to take of *trivṛit*-root, Soonta (dried Rhizome of *Zingibher officinalis*) and chebulic myrobolans equal parts and ripe Arica or betel-nut or Puga fruit, *Arica catechu* Linn, half a part and mix. This powder should be taken with the addition of *viḍańga* (seeds of *Embelia Ribes*), black-pepper, *devadáru* (*Cedrus deodara*) and rock-salt, in cow's urine.

The powders of purgative drugs such as *trivrit*, etc. may be soaked and well mixed up in the fresh juice of their roots, and this mass may be taken with the addition of clarified butter, in a decoction of the roots of the same drugs; or the mass may be taken in the form of boluses or pills made with clarified butter. The *trivit* powder may be made into a confection with boiling treacle and when the mass cools, the following should be added to it, *viz.*, cinnamon, cardamom and the leaves of *Cinnamomum tamala*, and made into pills of the proper size. The powders of purgative medicines may be boiled in four times the quantity of a decoction of the same drugs; and half the water is to be evaporated in this process and when cold, the mixture should be rubbed with clarified butter, and again heated over a hot vapour of the same decoction, so as to evaporate the watery portion and the mass is to be divided into several pieces, these pieces are to be powdered later on and put into a syrup and boiled; it should then be removed from the fire, and when cold made into balls, with the addition of aromatic substances. The pulse of *mudga* (*Phaseolus*

Mungo) or some other pulse may be steeped in the decoction of purgative medicines, and soup made of this pulse with the addition of rock-salt, clarified butter, and Ista = Varanda, *Ricinus communis* (castor-oil plant), may be given to the patient. Emetic medicines may also be administered in the same way. A piece of sugar-cane may be divided into two vertical halves, and a paste of the *tṛivṛit*-root should be put between them, and the canes then tied together with a piece of string and roasted, fire being placed all round the prepared cane. The roasted sugar-cane, when cold, should be eaten by the patient suffering from diseases caused by deranged bile.

Equal parts of sugar, *Ajagandha* = Vanayamani = *Bonyoan* (*Sesili Indicum,* syn. *Cnidium diffusum,* D.C.) cinnamon, *Kshírí* = Snuhi, (*Euphorbia Neriifolia,* syn. Euphorbia Lagularia), *Vidárí* = *Bhumikushmanda* (*Batatus paniculata,* syn. *Convulvulus paniculata*) and *trivrit* (*Ipomæa turpethum*), made into a linctus with honey and clarified butter, is given for a relief of fever, thirst, and burning. Mix very fine powder of *tṛivṛit*-root with sugar and honey and a third part, each of black pepper, cinnamon and *tejapatra* (*leaves of Cinnamomum tamala*). This is a suitable purgative for delicate persons. An electuary of *tṛivṛit*-powder, nearly six ounces, made with sugar and honey each one ounce and a half is a good purgative having especial action in discharging vitiated bile or bilious impactions. An electuary composed of *trivrit, śyámá* (*Ichnocarpus frutescens*), *Kshára* (impure carbonate of potash), Soonta, long pepper and honey is a good purgative for diseases caused by deranged phlegm. The fresh juices of myrobolans of *Káśmári* (*Gmelina arborea*), of *Dhatrí* = Amlaka (*Phyllanthus emblica*), of *Dáḍima* (Pomegranate) and of *Kola* (*Zizyphus jujuba*), each of these fruits so well developed as having a stone or seed, should be fried in oil and boiled or heated with tamarind pulp; when the mixture is thick enough, add to it equal parts of *trivrit,* honey and the three aromatics, namely, cardamom, cinnamon and *tejapatra* (leaves of *Cinnamomum tamala*), and thus make an electuary; this electuary is a useful purgative in the beginning of cold of delicate persons.

A powder composed of *trivrit* one part, *Nílí* (indigo plant) one part, sugarcandy, cinnamon and cardamom one part each, given along with tamarind pulp and honey is useful in quieting the deranged humours and curing diseases caused by derangement of all the three humours. A confection made with equal parts of *trivṛit, śyámá* (*Ichnocarpus frutescens*), sugar, long-pepper, the three myrobalans and honey, cures fever, hæmorrhage from mouth and nose, and diseases caused by derangement of all the three humours. Take three parts of *trivrit* and three parts in all of the three myrobalans and one part each of *Kshára* (carbonate of potash), long pepper, and *Viḍanga* (*Embelia ribes*), powder them and mix. This powder may be given with clarified butter and honey, or it may be made into boluses with treacle and thus taken. This harmless cathartic cures abdominal tumours caused by the vitiated humours, air and phlegm, enlarged spleen, ascites, a kind of jaundice and other diseases. A powder composed of equal parts of *S'yáma* (*Ichnocarpus frutescens*), *trivrit* (*Ipomœa turpethum*), *Nílí* (*Indigofera tinctoria*), *Katuka* = *Kaṭkí* (*Picrorrhiza kurroa*), *Mustá* (*Cyperus rotundus*), *Durálabhá* (*Alhagi Maurorum*), *chavya* (*Piper Chaba*), *Indravíja* (seeds of *Holarrhena antidysenterica*) and the three myrobalans should be taken with clarified butter and meat broth. Of all known purgatives the above list contains all innocent ones. This purgative preparation can be borne even by tender or irritable persons. Take of the cold decoction of purgative drugs three parts, of sugar two parts, and boil over a fire, when done, cool the solution and keep it in an earthen jar for upwards of a month in such manner that half of this period may be in the winter season and the other half in the season preceding or following winter; a fermented fluid with the smell of honey is thus formed. This fluid should be taken. Similar preparations may be made with alkaline water, cow's urine and spirituous or distilled liquors.

Soak the pulse called *Máshakaláya* (*Phaseolus Roxburghii*) in a decoction of purgative roots, and dry the pulse in the sun and wash some winter rice in the same decoction, powder the rice coarse, mix the pulse and the rice and make them into balls and dry and powder them very fine, the same fine powders should be heated in the decoction of the purgative drugs and pressed hard to make a paste of them. Take of this paste three parts, and of the drugs used for producing fermentation, called *Kiṇva*, one part, and mix them together. Mix all these with a suitable quantity of the decoction of purgative drugs in an earthen jar. The fermented liquid thus produced should be taken as a common beverage or drink. This process employed for obtaining cathartic fermented liquor may also be applied to emetic drugs.

Take of the roots of *trivrit* and other purgative drugs, as they are first of the medicines included in the group, *A'ragvadhádi*, and also take of the five drugs called *Mahati pánchamúla*, which includes Bale (*Œgle marmalus*), Sonaka (*Bignonia Indica*), Gambhari (*Gmelina Arboria*), Patala (*Steriospermum suaveolens*), Gaṇikarika (*Premna serratifolia*) also of Murva (*Sanseviera Zeylanica*) *Sarungosta* = Karanja (*Pogamia Glabra* syn. *Galedupa Indica*) of *Sudhá* (*Euphorbia neriifolia*), of *Haimavat* = Sy. :nakshiri (*Cleome felina, Linn* syn. *Polenasia felina, D. C.*) of [illegible]*vya* (*Piper Chaba*), of the three myrobolans, of *Ativishá* ([illegible]*conitum heterophyllum*), and of *Vachá* (*Acorus Calamus*), equal parts and divide them into two portions, of one portion make a powder, and of the other half a decoction. In this decoction, soak repeatedly some barley coarsely powdered, dry the barley in the sun and fry it gently. Three parts of this fried barley should be taken together, and the other part of it is to be powdered very fine. These should all be placed in an earthen jar along with the cold decoction of the roots and allowed to ferment. This fermented liquor is called *Sauviraka* or kanjee.

The medicines above-mentioned should be collected and divided into two portions; one portion should be powdered, the other portion should be boiled with barley in a decoction of *Ajaśriñg* (*Gymnema sylvestre*). When well boiled, the medicines should be separated and pounded with their husks. Then take three parts of these pounded medicines, and one part of the powder set apart above, mix them, next put them and the decoction above-mentioned, in an earthen jar. This preparation when ready is called *Tushodaka*. We have thus explained the processes for preparing *Tushodaka* and *Sauvíraka*. They are ready for use in about six or seven nights. Thus we have fully described the different processes how *trivrit* is used as a purgative; it, the trivrit, occupies a prominent place amongst the purgatives. The modes of administering *Dantí* (*Baliospermum montanum*) and *Dravantí*, Mushikaparni = (*Salvinia cucullata*) are now being described. The roots of these two plants should be wrapped in *kuśa* grass (*Poa cynosuroides*), covered with clay and boiled. When well done, the roots should be dried. They can be administered with the addition of long-pepper and honey, in diseases caused by vitiated humours, bile and phlegm; in the same manner as has been pointed out when we have discussed how *trivrit* should be used. An oil, called *Chukra taila*, may be prepared with the roots of these two plants reduced into a semi-solid mass, and a medicated Ghee or clarified butter is prepared with the decoction of these roots and clarified butter. These preparations of *Danti* and *Drav*[illegible]*ti* roots, with their oil and butter, cure erysipelas, large abscesse[illegible] the axilla, burning sensation in the system, and the eye-disease ca[illegible] *Alají*. Alaji also means inflammatory eruptions on the skin. The oil also cures urinary disorders, tumours in the abdomen and constipation, caused by aggravated humors air and phlegm. These four substances, *viz.*, *Dantí* (*Baleosporum montanum*), *Dravanti*= Mushikaparin (*Salvinia Cuculallata*) *Chukra Taila* or the prepared oil and the medicated clarified butter, cure diseases caused by the obstruction to the passage of fœces, semen and air.

Take of the roots of *Dantí* (*Baliospermum montanum*), *Dravantí* (*Salvinia cucullata*), *Kanaka* (*Datura metel*), *Vásaka* (*Justicia adhatoda*) *Chitraka* (*Plumbago zeylanica*) and of black pepper, Visabhasoja = Soonta the dried Rhizome of *Zingiber officinalis* and raisins, and soak them in cow's urine and dry in the sun and so again, alternately for seven days. Then dry the drugs, powder, and administer with clarified butter, cumin seeds and honey. To cure diseases caused by disordered phlegm and bile, indigestion, pain in the sides, jaundice, enlarged spleen and ascites.

Take of treacle, sixty-four tolahs, nearly 26 ounces, powden myrobolans, one hundred and sixty tolahs, nearly the earth *Dantí* (*Baliospermum montanum*), two tolahs, abwater is to be *Chitraka* (*Plumbago zeylanica*), two tolahs, aecies of ether. long pepper, ten tolahs, four ounces, and *trivr*obtained from the *fe*um), ten tolahs, four ounces, and preparewater, tank-water, in Al balls and administer one every tenth dallow well-water. w to be be taken after it, such acts keep spring-water should be free from all bodily complaints. This nvery wholesome. In ment of the humours, and the disease callefrom impurities and bowels of a chronic character, jaundice, piles, In winter, lake and

Take of ginger, long pepper, black pepper, er, water from moms, *tejapatra* (leaf of *Cinnamomum tamala*), two months of *Cyperus rotundus*), *Vidanga* seeds of (*Embelia R*l wells, and all *laki* (*Phyllanthus Emblica*), of these nine, one part, may be *trivrit* (*Ipomœa turpethum*), eight parts, of the root of with (*Baliospermum montanum*), two parts, of sugar, six parts; all of these reduced to a very fine powder and then mixed up and made into balls with the addition of a little rock-salt and honey. Some cold water should be drunk after taking this medicine. This medicine cures painful diseases connected with the organs in the pelvic cavity, thirst, fever, vomiting, consumption, jaundice and mental aberration. It acts as a cathartic and removes the effects of poisons, its use eases all sorts of pain. This medicine is called *Trivridashṭaka* and is very serviceable to patients suffering from deranged bile. Those who are suffering from incorrect liver and catarrh of the lungs should drink some milk after taking this medicine. From the mode of its preparation this medicine is suited for rich people.

Take the outer bark, after rejecting the inner bark of *Tilvaka*

= Lodhra (*Symplocos racemosa*), powder and divide it into three portions. Two parts of the powder should be mixed with a decoction of the same bark, and the third part should be soaked in the same decoction and dried, and afterwards soaked in a decoction of the ten drugs called *Dasamúla*. *Dasamula viz.*
(*Ægle marmalas*), Sonaka (*Bignonia Indica*), Gambhari
Arboria), Patala (*Stereospermum suaviolens*), Gání-
nna serratifolia) Salapani (*Desmodium Gangiticum*
m Gangiticum), Prishniparni (*Uraria lagopo-*
a L), Kantakari (*Solanum Jacquina*), Vrihati
) Gokshura (*Tribulus Torrestris*). Th
red and administered in the same wa
of *trivrit*. The modes of adminis
hus been described. I will now p
g purgative fruits.
a, Chebulic myrabolans, their seeds or
d they being free from defects in their g
ered in the same forms which have been desc.
f *trivrit* and of its use, for the cure of all dise
yrobolan is a powerful medicine, it prevents old
prolongs youth, it is the elixir vitæ of the Alchemist
improves memory and purifies unhealthy internal inflammations or internal foul ulcers. Chebulic myrobolan, *Viḍanga* (*Embelia Ribes*) rock-salt, dried ginger, black pepper and *trivrit* in equal parts, administered with cow's urine, act as a purgative. Chebulic myrobolan, *Bhadra-dáru* (*Cedrus deodara*) *Kushṭha* (*Saussurea auriculata* syn. *Aplotaxis auriculata*) *Púgaphala* (betel-nuts), rock-salt, and dried ginger administered with cow's urine, act as a cathartic. *Nílinìphala* (fruit of *Indigofera tinctoria*), dried ginger and chebulic myrobolans powdered should be taken with treacle, and some warm water drunk afterwards. Chebulic myrobolans pounded to a paste and taken with a decoction of the drugs included in the group *Pippalyádi* with the addition of rock-salt, act as a prompt or active cathartic. Chebulic myrobolans taken with dry ginger powder

and treacle or with rock-salt, increase appetite or digestive power, regulate the course of deranged air, increase strength and clear the senses. The diseases caused by over-indulgence in food, [illegible] also cured by chebulic myrobolans. Emblic myrobolans *Phyllanthus Emblica* are cooling and drying or absorbant. They increase bile, phlegm and fat. Belleric myrobolans thou[illegible] heating, yet they reduce phlegm and bile. These th[illegible] bolans collectively called *Triphalá* have the acid[illegible] bitter and sweet tastes, and cure all diseases. [illegible] these three myrobolans habitually taken wit[illegible] preserve youth and prevent the effects of old [illegible]

All purgative fruits especially *Chatura*[illegible] are to be collected from the trees when they [illegible] The ripe fruits of *Cassia fistula* should be [illegible] in sand. They should then be dried in the [illegible] the kernel of the seed should next be separa[illegible] the kernal should be extracted first by boiling [illegible] then by pressing it hard in an oil-mill as whe[illegible] are pressed, to part with their oil; this oil may be g[illegible] up to the age of twelve. Castor-oil, taken with [illegible] of dried ginner, long-pepper, black-pepper and *Kushṭha* (*S*[illegible] *auriculata*) and followed by a drink of tepid water acts as a purgative. Castor-oil taken with twice its quantity of a decoction of the three myrobolans, or with milk or meat-broth, acts as a purgative. This medicine is well suited to the conditions of the old, the young, the weak and the consumptive as well to the conditions of delicate people.

The several modes of administering purgative fruits have thus been described. Dear Suśruta! now we speak of the different modes of administering purgative milky juices; be all attention. Of all the drastic cathartics, the milky juice of *Sudhá* (*Euphorbia neriifolia*) is the best. When administered carelessly by ignorant persons it destroys life like a poison, but given to a proper case, by knowing persons, it is equally a powerful engine for good, and it removes or rectifies humours long deranged, and cures very severe and obstinate diseases.

Mix the milky juice of (*Euphorbia neriifolia*) with equal quantities of a decoction of the five roots included under the class *Vrihatipanchamúla* and of *Vrihatí* (*Solanum Indicum*) and of *Kanṭakári* (*Solanum xanthocarpum*), separately one by one, and evaporate the mixtures over a fire of the wood or
of *Euphorbia neriifolia.* When this preparation is
antity of it of the size of a large jujuba fruit should
a decoction of some drug included in the *Amládi*
lass.

soaked in the milky juice of Mahabriksha,
a, and a *yavagúe* or gruel made with this
e may also be made into a confection with
tions cause purgation at once. A linctus
the milky juice of Snuhi, clarified butter
pper and Gajapeppali, fruit of *Scindapsus*
oaked in the milky juice and then dried in
en with the addition of some salines; and the
er (*Mallotus Philippensis*) may also be treated
nner, made into boluses and administered sub-

lá = *patala* (*Stereospermum suaveolens*), *Sankshiṇí* = Chorapushpi (*Andropogon acicularis*), *Dantí* (Baliospermum *montanum*), *trivrit* (*Ipomœa Turpethum*) and *Aragbadha* (*Cassia fistula*), should be soaked in cow's urine for one week, and then for another week in the milky juice of *Euphorbia neriifolia*, they should then be powdered and sprinkled on garlands or clothings. The smelling of these powders and their absorption by the skin from the clothing, act as purgative to people whose bowels are readily acted upon by mild remedies.

The several modes of using milky juices, barks, fruits and roots as purgatives have been described. They should be administered after a due consideration of the diseases etc. for which they are fit to be used. A tola and a half, nearly three drachm, each, of trivṛit, of the three myrobolans, of cinnamon, of *Viḍanga* (*Embelia Ribes*), of long pepper and of *Yavakshára* (impure carbonate of potash) should be mixed together, made into boluses with treacle and used as a preparation, or the powder may be taken with clarified butter and honey. This is an excellent cathartic. It cures abdominal tumours, enlarged spleen, cough, jaundice, nclination for food and other diseases caused by deranged air and phlegm. The knowing physician will administer medicines with clarified butter, oil, milk, wine, co some other fluid, or with some article of diet, to b licked. Milky juice, juice pressed out from made of them, their decoctions, cold infusions six different forms or preparations of purgati are lighter in the order they are menti first mentioned is the strongest form.

CHAPTER XLV

ON THE PROPERTIES OF LIQUID S

WATER.

The taste of rain-water is unknown and unasce water is like nectar, it preserves life, it is satis porting, it makes one hopeful. It removes weariness, de sion, thirst, excitement, fainting, drowsiness, sleep, and burning sensation of the system, and is in every respect beneficial and is also a proper drink for the sick.

When it (the rain water) falls down as rain and comes in contact with the surface of the earth it imbibes different tastes and more particularly it acquires tastes according to the size of the place where it remains, in other words, according to its bulk contained in such places *viz.* rivers, lakes, large tanks, ponds, wells, small wells, cascades, springs, fields and shallow marshes covered with weeds. Some are of opinion that water acquires the sweet, acid, saline, acrid, bitter and astringent tastes, by coming in contact with red, tawny, yellowish-white, yellow, blue, and white varieties of earth respectively. But such explanation is least credited.

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of the earth
water is to be
perties of ether.
obtained from the
ke-water, tank-water,
hallow well-water.
spring-water should be
very wholesome. In
from impurities and
s. In winter, lake and
mmer, water from
rst two months of
all wells, and all
n-water, may be
lluted with

The five elements, earth, fire, etc. by their various combinations, cause the water to be good or bad. If the ground on which rain-water falls, possesses in abundance the properties of the earth, then the water acquires the acid and saline tastes. If the ground possesses in abundance the properties of aqueous va-
our th the rain-water, mixing with it, acquires the sweet taste;
falling on ground endowed in abundance with the
fire, becomes acrid or bitter; on ground with
e properties of air, rain-water acquires the as-
lastly, rain-water, falling on ground possess-
fifth element, *Akash* the all pervading fluid
ite or unappreciable taste, because the taste
ed. This last sort of water is to be pre-
poses in want of pure rain-water because
as no perceptible taste.
of four kinds namely, rain, ice, mist and
-water is the best because it is the lightest.
wo sorts, namely, Gangum water, the water of
hamudrum, or sea-water. This so-called river
alls down as rain in the month of *Ásvina* (Septem-
ber). The character of these two forms of rain-water,
so-called river and the so-called sea-water) should be ascertain-
or tested respectively during their fall in the following manner. A quantity of winter rice (*sáli taṇḍula*) cooked neither very softly nor charred with heat, should be made into a ball, and exposed to the rain on a silver plate; if the ball does not undergo any change in a moment, the falling rain should be known to belong to the Gangum variety, but if the ball of rice is soon discoloured, softened or melted, then the falling water should be considered to belong to the so-called Shamudrum or sea-water variety. This last is not so agreeable but if sea-water falls in the mouth of *Ásvina* (September—October) then it possesses the properties of so-called river or Gangum water. Gangum water is superior, it should be collected in the month of *Ásvina* from a piece of pure white silk cloth which was spread for receiving the rain-water

and such waters as drop by gravitation from the centre of the cloth; another mode of collecting the same water may be, when it falls from the roofs of houses, or collected by other means, and the waters thus collected should be preserved in vessels of above description, *viz.*, either made of gold, or silver or earth. This water may be drunk in all seasons throughout the year. When such water is not available, water from the surface of the earth should be taken. The ground from which drinking water is to be collected should possess in abundance the properties of ether. There are seven varieties of waters which, are obtained from the earth, namely well-water, river-water, lake-water, tank-water, water-fall-water, spring-water and small shallow well-water.

In the rainy season, rain-water and spring-water should be used for drinking purposes, these being very wholesome. In autumn all sorts of water are pure, or free from impurities and they may all be used for drinking purposes. In winter, lake and tank-water may be used. In spring and summer, water from waterfalls and wells should be taken. In the first two months of the rainy season (called *Právrit*) water from small wells, and all sorts of water, with the exception of fresh rain-water, may be used as a drink. He who bathes in, or drinks water polluted with worms, urine, fœces, eggs of insects, putrid dead bodies, heaps of grasses or leaves, and poisons, etc., and he who drinks and bathes in fresh rain-water in the rainy season, soon suffers most from internal and external bodily complaints of various descriptions.

The water which, is covered with *Saivála* (*Blyxa octandra*), *Haṭatriṇa* (a variety of *Vallisneria*), *Padmapatra* (leaves of *Nelumbium speciosum*), mire etc., and which is not exposed to the light of the sun and of the moon or to the wind, and which is imbued with smell, colour and taste, should be known as impure. Such water has six kinds of defects, namely, that of smell, taste, touch, appearance, energy and products of digestion. Of these six, the first defect is grittiness, mucilaginousness, heat and tendency to cause tenderness of the teeth and this defect is known by the sense of touch. The state of water being mixed up with

28

mud, sand, moss, and thus being brought to a condition of possessing many colours, this is a defect of appearance in water. If the waters possess any perceptible kind of taste, it is the defect of taste. If the waters have a bad smell, that is the defect of smell. If the water, after being drunk, causes constant thirst, sense of weight, pain in the pit of the stomach, and discharge of phlegm, it should be known to have the defect of energy. The water which digests in a long time or which causes indigestion, should be known to possess the defect of digestion. These defects do not exist in rain-water. Impure water should be purified by being boiled over a fire or by being heated in the sun, or by dipping a heated iron into it, or it may be purified by filtration through sand and coarse gravel, and then allowed to cool or the water may be made fragrant by steeping in it the flowers of *Nága* (*Messua ferra*}, *Champaka* (*Michelia champaca*), *Utpala* (*Nymphœa stellata*), *Páṭalá* (*Stereospermum suaveolens*), etc.

Fragrant water should be drunk out of vessels made of gold, silver, copper, bell-metal, and precious stones. It may be drunk also out of earthen pots, adorned with flowers. Impure water should always be avoided. The sort of water which has been recommended for use in each season, should also be adhered to. If water, unsuited to the season, be taken, it will cause disease. Those who drink impure water without purifying it, suffer from anasarca, anœmia, or jaundice, skin diseases, indigestion, asthma, cough, catarrh, gastrodynia, abdominal tumours, ascites and other severe forms of diseases.

There are seven modes of purifying water, namely, by the use of *Kaṭakaphala* Nermalli (seeds of *Strychnos potatorum*), *Gomedaka* = a kind of stone, *Visagranthi* (root stock of *Nelúmbium speciosum*), *Saiválamúla* (root of B*lyxa octandra* syn. *Vallisneria octandra*), clothes, pearls and precious stones.

There are five different substances that can be used to purify water, they being plunged in it *viz.*, *Phaloka* = *Nagakesara* (M*esna Ferria*), *Throstoka* a kind of remedial agent, M*ungavolou* (*saccharum* M*unga*) *Udokamongika*, and *Shukuncha*.

There are seven modes of cooling water, namely, by keeping it in a place freely exposed to the air, sprinkling of water on the receptacle containing the water to be cooled, stirring the water with a rod, fanning the water, to allow the water to pass through some cotten fabrics being stretched, throwing some sand into it, and suspending the water pot in a *Sikya* (a loop of three strings for receiving a burthen). Water which, is free from smell and taste, which relieves thirst and which is also light, pure, cool and free from dirt, and agreeable to taste, is wholesome and beneficial.

The water of rivers which run towards the West, is light and therefore fit for drinking. Rivers which, run towards the East possess heavy water which, is therefore unsuited for use. The water of rivers which run towards the South, is neither light nor heavy. The water of rivers, that have their origin in the mountains to the north-west side of the Peninsula called *Sahya*, gives rise to skin diseases. The water of rivers rising in the Vindhyá mountains, causes skin diseases and anœmia or jaundice.

The water of rivers originating in the Western Ghats (*Malaya parvat*) gives rise to intestinal worms. The water of rivers rising in the *Mahendra* mountains, causes elephantiasis and ascites. The water of rivers originating from mountains, of perpetual snow causes heart-diseases, swellings, headache, elephantiasis and bronchocele. The water of rivers rising from the *Páripátra* (the central portion of the Vindhyá chain which skirts the province of Malwa) causes diseases of menstruation. The water of rivers running towards the East or the West causes piles.

The water of rivers, having rapid and clear streams, is light. The water of rivers with slow streams and whose water is polluted with the growth of aquatic weeds, etc., is heavy. Rivers passing through sandy deserts generally have water with bitter and saline taste; sometimes such water is slightly astringent and sweetish; such water is light and strengthening, also early morning is the best time to collect water from rivers, lakes etc., because that is the time, when waters keep clean and cool, in such places. These are the two best qualities of water. The water that, is exposed to the rays of the sun and to the moonlight, is not heating, nor does it induce cold, nor running of the eyes, it is equal to rain-water in its properties. Rain-water, should be kept in clean vessels, it corrects derangements of all the three humours, is strengthening, prolongs life, improves memory and relieves dryness, that is, it acts as a demulcent. It is exhilarating, cooling, and relieves fever, burning sensation of the system, also it acts as an antedote for poisons.

Water derived from a rock called *Chandrakánta* relieves incorrect bile, and is said to be free from all impurities. Cold water is serviceable, and should be used in fainting, in burning heat caused by vitiated bile or blood, in poisoning, in intoxication from alcoholic liquors, or in delerium tremens, in mental aberration, in a sense of fatigue, in a form of asthma called *Tamaka,* in vomitting, in hæmorrhages from the upper parts of the body, such as hæmoptysis, hæmatemesis, epistaxis, etc. Cold water should be avoided in colic pains in the sides, catarrh, diseases caused by deranged air, diseases of the throat, tympanites, in acute fever, soon after the use of purgatives, and their free action, in hiccup resulting from the use of oleoginous substances or from vitiated bile.

River-water is light, heating and attenuant. It increases digestive power and the humour air. When such water is thick and sweetish, it is heavy and gives rise to cold and running of the eyes. Tank-water is strengthening, astringent, sweet and light, and it appeases thirst. The water of tanks called *Taḍága** is agreeable to taste and astringent, it increases humour air and is heavy of digestion. The water of Bapee, a kind of pond, is saline and acrid, it increases bile and removes the excess of the humours air and phlegm.

Well-water is brackish and light, it increases the secretion of bile and promotes digestive power. The water of small wells is sweet and heating, it increases digestive power but it also removes phlegm. Cascade-water is light, and agreeable, and increases digestive power, and diminishes phlegm. Spring-water is sweet, and controls bile and causes no acidity. The water from pits in the sand called *Vikira* is acrid, brackish and light; it increases digestive power and removes phlegm.

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* Tadaga is a tank or lake formed by water from high grounds coming down and collecting in a low ground.

The water of fields or meadows is sweet. In the act of and after digestion, it becomes heavy and increases the humours. The water of shallow tanks or marshes covered with weeds possesses the same properties as field water and specially capable or powerful in aggravating the humours. Sea-water has a fishy smell and saline taste, and aggravates and vitiates all the humours. The water of marshes causes cold or watering of the eyes, possesses many defects, and is very unwholesome or objectionable for use. The water of countries diversified with hills, vales, etc. is free from the defects of marsh-water, and is unobjectionable, it relieves thirst and is agreeable, wholesome and digestive. The water of countries, called *Sádhárana*, where the soil is of mixed character, is cool, light and sweet, and promotes digestive power. Warm water removes phlegm, fat and the humour air, it also corrects painful complaints of the pelvic organs. It cures asthma, cough and fever, and is always suitable as a drink for sick persons. Water which has been boiled down to one-fourth, and which is free from dirt and froth, and which is motionless and light, and which is efficacious in its application, should be used by the sick. Boiled water, which has been kept all night, should never be given to a patient next morning. Such water becomes acid, increases phlegm, and does no good to the thirsty. In diseases, caused by excess of alcoholic drinks, by deranged bile, or by derangement of all the humours, boiled water which has been cooled again, should be taken.

Cocoanut-water is cooling, sweet, cool and agreeable, it increases digestive power, urinary secretion, and sexual desires. It is heavy and it relieves thirst caused by deranged bile. It is useful in burning heat of the body, in severe forms of diarrhœa, in internal hæmorrhages, in fainting fits, in intoxication from alcoholic drinks, and in poisoning. Boiled water which has been cooled again, is useful in thirst, vomiting and mental aberration.

Very little water should be drunk in the following diseases, namely, dyspepsia with disinclination for food, catarrh, discharge from the nose, anasarca, consumption, low digestive power, ascites, skin-diseases, fever, eye-diseases, inflammations and diabetes.

MILK.

The milk of the cow, the goat, the camel, the ewe, the mare, the elephant and the human, all of these milks are alike derived from the ingestion of various sorts of vegetables, which possess some remedial virtues, consequently their milks are so very useful. These varieties of milks are nourishing, heavy, sweet, demulcent, cooling, mild and laxative. Hence milk is said to be beneficial as food to all animals, and the above-mentioned varieties of milk may be taken by all animals respectively, for milk is their natural food. The use of milk is not contra-indicated in disorders caused by the deranged humors, air and bile, it is not contra-indicated again in vitiated blood, and mental diseases. It is beneficial in chronic fever, cough, asthma, wasting or consumption, abdominal tumours, ascites, insanity, fainting, mental aberration, intoxication from alcoholic liquors, burning of the body, thirst, diseases of the heart and bladder, jaundice, that kind of diarrhœa called *Grohonee,* that is, chronic looseness of the bowels, piles, gastrodynia, tympanitis, diarrhœa, dysentery, diseases of the vagina, abortion and internal hæmorrhages. Milk relieves the sense of fatigue and exhaustion, removes sinful tendency, strengthens the system, increases the sexual and mental powers, preserves youth and prevents decay, increases longevity and the vital powers, makes memory strong. It favours the healing or union of wounds, is useful in both vomiting and purging, and increases the vitality or the vital action of the body. It is a suitable food for the young, the old, the consumptive, and for those suffering from fasting or from excessive sexual intercourse or excessive physical exercise.

Cow's milk does not cause cold, it is heavy, oily, cool, and sweet, both to the taste and after digestion. It prolongs life, wards off old age, and cures hæmorrhages from internal organs. Goat's milk possesses properties alike those of cow's milk. It is especially useful to the consumptive, and in disorders of the humors bile and air. It prolongs life and increases digestive power. It is light and astringent, and cures asthma, cough and hæmorrhages from internal organs. Goats have small bodies, they eat acrid and bitter herbs, do not drink much water, and take a great deal of exercise; hence their milk is useful in all diseases. Camel's milk is heating, slightly saltish, light and agreeable to taste. It is serviceable in anasarca, abdominal tumours, ascites, piles, intestinal worms, skin diseases and poisoning. Ewe's milk is sweet, cooling and heavy; it increases the secretion of bile and phlegm, and is useful only in cough caused by deranged air and also in cases where the humour air alone is to be corrected. The milk of the buffaloe is sweet, cooling and heavy, it has a great tendency to cause cold or watering of the eyes; it diminishes digestive power and causes sleep; it is more cooling than cow's milk. The milk of the group of animals whose hoof is undivided, such as a mare, is hot and strengthening; it has a sweet and acid taste with a saline secondary-taste; it is not as soothing, it is light and heating. It also removes the Rheumatic affections of legs and arms. Human milk is sweet and cooling, with an astringent secondary taste. It is very beneficial to life, it promotes digestion and is a valuable article of diet for children. Elephant's milk is sweet, strengthening, cooling and heavy with an astringent secondary-taste, it is soothing and makes one sweet-tempered. It gives firmness and strength to the body, and is good for the eyes.

Milk drawn in the morning is generally heavy, cooling and not easily digested, owing to the influence of the moon and to the want of exercise of the milking animal at night. The milk obtained in the evening diminishes the humour air, relieves the sense of fatigue and is good for the eyes. These qualities are due to the exposure of the animals, to sunshine and to free open air, and to the exercise taken by them during the day. Unboiled milk is generally heavy and causes cold and watering of the eyes. Boiled milk is light, and does not cause any eye-disease, with the exception of human milk which alone is beneficial in its unboiled state; all the other unboiled milks, are calculated to do harm, but when such milks are fresh, being presently milked, while still warm and frothy, possessing properties in their normal condition they are beneficial. Unboiled cold milk is injurious. Milk that has been overboiled is heavy but strengthening. Milk with a bad smell, with an acid or saline taste or the *milk* which is curdled, should be rejected.

CURDLED OR COAGULATED MILK.

Dodhee or coagulated milk, may be sweet, acid or very acid. It has an astringent secondary-taste. Coagulated milk is auspicious, strengthening and vitalising. It is oily and heating. It is useful in ozœna, chronic fever, that is, resembling fevers of hectic type, diarrhœa of a severe character, disinclination for food, strangury and emaciation. Sweet coagulated milk causes catarrh and increases the humor phlegm and fat. Acid coagulated milk increases the humors phlegm and bile. Very acid coagulated milk affects the blood injuriously. Imperfectly coagulated milk, causes heart-burn and increases the fœces, urine, so also the three humours bile, air and phlegm. Coagulated cow's milk is oily, sweet in the process of, and after digestion, strengthening, pure, appetising, and digestive. It diminishes the humor air and it is considered holy or sanctifying. Coagulated goat's milk is light, and digestive; it diminishes phlegm and bile, and is useful in consumption caused by the deranged humor air, in asthma, cough and hæmorrhoids. Coagulated buffaloe's milk is sweet in the process of and after digestion, it is oily, and strengthening; it controls the humours air and bile and it is also soothing.

Coagulated camel's milk acquires the acrid taste in the process of and after digestion, it is alkaline, hard to digest and acts as a purgative. It is useful in piles caused by the vitiated humour bile, in skin diseases, in intestinal worms and in ascites. Coagulated ewe's milk has the sweet taste, and after digestion it retains the same. It increases the humours, causes eye-diseases and irritates piles and aggravates the humours, air and phlegm. Coagulated mare's milk is hot, it is astringent and drying. It increases the humour air and the digestive power, it is bad for the eyes and it diminishes the humour phlegm and urine.

Coagulated human milk is oily, sweet in the process of and after digestion, it is heavy and strengthening. Its use causes a sense of agreeable satiety. It is very good for the eyes, it removes derangements of the humours and possesses superior qualities. Coagulated elephant's milk is sweet and light, but it has the astringent taste in the process of and after digestion. It is heavy, oily and cooling. It is good for the eyes and gives firmness to the system. Of the different varieties of coagulated milk described above, that prepared out of cow's milk is preferable above all. It is sweet, cooling and nourishing and it adds to one's verile power. It diminishes the humour air, it increases the humour phlegm, but it does not increase the humour bile. The use of coagulated milk that has been well-strained through cotton fabrics, causes inclination for food. Coagulated milk, prepared with such milk which was boiled first, is said to be superior. It improves appetite, increases digestive power and strengthens the tissues. It diminishes the humours air and bile. The cream of coagulated milk is heavy and strengthening. It diminishes the humour air, and it increases digestive power, the humour phlegm and semen. Coagulated milk, prepared with skimmed milk, is heavy, astringent and light. It promotes appetite, constipates the bowels, increases the humour air and causes flatulence.

Coagulated milk generally disagrees in autumn, in summer and in spring; it agrees well in the other three seasons, *viz.*, winter, cold and rain. The whey obtained from coagulated milk, called

Dadhi mastu, is light, and it relieves thirst and the sense of fatigue. It is acid, astringent, sweet, strengthening and agreeable. It clears the outlets of the body, rapidly empties the bowels, and causes inclination for food.

The properties of the seven varieties of coagulated milk have now been described: These seven varieties are as follows, namely, the sweet, the acid, the very acid, the imperfectly coagulated, and the rest are prepared from boiled milk, from skimmed milk and the cream of coagulated milk is also considered as one of them. The whey obtained from any of these varieties of coagulated milk possesses the properties of any of the seven above forms or kinds from which each is obtained.

BUTTERMILK.

Thokrú or buttermilk is sweet and acid with an astringent secondary taste; it is light, and has the heating energy, it has a drying effect on the system, and it increases digestive power; it acts as an antidote for poisons, it cures, or is useful in skin diseases, in anasarca, in looseness of bowels of chronic character called *Grohonee,* in diarrhœa of a severe type, in jaundice, in piles, in enlarged spleen, in abdominal tumours, in dyspepsia with disinclination for food, in chronic fevers of hectic type, in thirst, in vomiting, in watering of the mouth, in gastrodynia or colic and in corpulence or obesity, it removes the humours air and phlegm. It acquires the sweet taste after digestion, it is agreeable and useful in painful micturition and in disorders caused by abuse of oleaginous articles of diet. It does not increase the power for sexual intercourse.

The buttermilk, which is obtained after the separation of its share of butter, and being mixed with half its quantity of water, and when it is neither very thick nor very thin, is called *Thakra.* It is sweet, acid and astringent to taste. The buttermilk, if obtained pure after churning, that is, when it is not much diluted with water, is called *Ghola. Thakra* should not be given to patients with ulcers, to weak persons, and in the hot season. It should not also be taken by persons suffering from fainting fits, mental aberration, burning sensation of the system and internal hæmorrhages. It is suitable for use in the cold season, in loss of digestive power, in diseases caused by deranged phlegm, in obstruction to the outlets of the body and in disordered humour air.

Sweet *Thakra* increases phlegm, and diminishes the humour bile. Acid *Thakra* diminishes the humour air and increases the humour bile. In disorders caused by deranged humour air, acid *Thakra* should be given with the addition of rocksalt. In diseases caused by the deranged humour bile, sweet *Thakra* should be given with the addition of sugar. In disorders caused by the deranged humour phlegm, *Thakra* should be taken with the addition of dried ginger, long pepper, black pepper and alkalies. The curd (*Thakra kúrchiká*) is astringent or binding, it is hard to digest and heating, it increases the humour air. The whey obtained from *Thakra* (buttermilk) and from *Dadhi* (coagulated milk) after the separation of their curds, appears to be lighter than buttermilk. Curds are heavy or hard to digest, they increase the humour air and promote sleep, and also the desire for sexual intercourse. *Píyúsha*, or the milk obtained from cows within the first seven days of their calving, and *Morata* or the milk of seven days' standing, both have the properties of curds in excess. They have a sweet taste and are strengthening and act as an aphrodisiac.

Butter.—Fresh butter is light and soft. It is sweet to taste, it is astringent and slightly acid. It is cooling and agreeable, it improves memory, increases digestive power, diminishes the humours bile and air, it is strengthening, and does not cause any heart-burn. It is astringent, or binding, acts as an aphrodisiac and is useful in consumption, in cough, in asthma, in inflammation, in piles and in facial paralysis. It is strengthening and nourishing and it prevents abnormal or undue wasting of the tissues, of organs and of the system at large. It is especially suitable for children.

Butter obtained from milk is a very superior oleaginous article of food, and it is agreeable. It has a sweet flavour, and is very cooling. It improves the sight and causes delicacy or softness of the body. It is serviceable in eye-diseases, and it acts also as an astringent in internal hæmorrhages.

Cream is heavy, agreeable, strengthening, acts as an aphrodisiac, oleaginous, sweet and palatable. After digestion it acquires the sweet taste. It is useful in internal hæmorrhages.

The different properties of the several preparations of milk that have been described above should be understood, that these apply exclusively to such preparations that are obtained from cow's milk alone. Similar preparations obtained from the milk of other animals possess the peculiar properties of the milks from which they are obtained.

CLARIFIED BUTTER.

Clarified butter is cool and it has the cooling energy. It is soft and sweet, slightly acid and has a tendency to cause cold and watering of the eyes. It is useful in obstruction of the bowels, in insanity, in epilepsy, in gastrodynia, or colic fever and in tympanitis. It diminishes the humours air and bile, increases digestive power and improves memory, and will-power. It improves the complexion, voice, lustre, delicacy of the body and increases also the strength, energy and vitality of the system. It prolongs life, increases the mental, and sexual powers, prevents old age, and preserves the sight, it is of heavy digestion. It increases the humour phlegm, removes impious thoughts and poverty, acts as an antidote for poisons and destroys evil spirits.

Clarified butter obtained from cow's milk is sweet in the process of and after digestion. It is cooling, and it diminishes the humours air and bile; it increases strength and is good for the eyes and it is superior to other clarified butters obtained from milks of other animals. Clarified butter obtained from goat's milk, increases digestive power and strength, it is good for the eyes, and is beneficial in cough, in asthma and in consumption. It is easily digested. Clarified butter obtained from buffaloe's milk, is sweet and cooling, it arrests hemorrhage, it increases the humour phlegm, and it is digested with difficulty. It diminishes the humours, bile and air. Clarified butter obtained from camel's milk, acquires the acrid taste in the process of and after digestion, it increases digestive power and diminishes the humours phlegm and air. It is useful in swelling, in intestinal worms, in poisoning, in skin diseases and in abdominal tumours. Clarified butter obtained from ewe's milk, is easily digested, it does not increase the humour bile and it is beneficial in the disordered humours phlegm and air, in diseases of the vagina, in consumption and in tremors. Clarified butter obtained from mare's milk is easily digested, it has the heating energy, it is astringent, and it causes retention of urine and fœces. It diminishes the humour phlegm and increases digestive power. Clarified butter obtained from human milk is compared with nectre, it is very beneficial for the eyes and is easily digested. It nourishes the body, increases digestive power, and acts as an antidote for poisons. Clarified butter obtained from elephant's milk is astringent and causes retention of urine and fœces. It is bitter and light, and it increases digestive power, and is useful in the disordered humour phlegm, in poisoning and in the treatment of worms.

Kshíra ghrita or clarified butter obtained from milk is astringent and relieves hæmorrhages from internal organs, and it also relieves mental aberration, fainting and eye-diseases.

Sarpimaṇḍa or the scum or the dross left behind in the preparation of clarified butter, is laxative, and it relieves severe forms of pain in the head, eyes, vagina and the outlets of the body. It is recommended for use in filling the bladder, nose and eyes. Old or long standing clarified butter is, laxative, and pungent in the process of and after digestion, it removes the derangements of the three humours, *viz.*, air, bile and phlegm, it improves the digestive power and is useful in fainting, in insanity, in corpulence, in abdominal tumours, in fevers, in poisoning, in inflammatory swellings and in epilepsy. It relieves severe forms of pain in the eyes, head, vagina and other outlets of the body. It is also recommended for filling the bladder, nose and eyes.

Here are some verses:

Old clarified butter cures amaurosis, asthma, ozœna, fever and cough. It is useful also in fainting, in skin diseases, in poisoning, in insanity, in epilepsy and in the diseases caused by evil spirits, etc. Clarified butter which is eleven hundred years old is called *Kumbhasarpi*. It protects from evil spirits. *Ghrita* older than this, is called *Mahá-ghrita*. This last should be taken by persons who suffer from excess of the humour air. It also diminishes the humour phlegm, it increases strength, purifies the body, and improves memory and is especially curative in amaurosis. Such *Ghrita* is said to overcome all sorts of evil spirits.

OILS.

All oils are heating, and they belong to the class of material substances which possess in excess of the elements of fire in their compositions. They are sharp and sweet, and acquire the sweet taste in the process of and after digestion. They are nourishing, agreeable, aphrodisiac, and laxative. They are heavy, tenuous and clear, and penetrate the entire system, they increase the strength, beautify the skin, soften the body, improve the mind, nourish the muscles, and improve the complexion, strength and eyesight. They diminish the urine and act as an attenuant. They are bitter to taste and have an astringent secondary taste, they are digestive, and they diminish the humours air and phlegm. They destroy worms, but they do not cause urticaria or eruptions like it. They relieve pain in the vagina, head and ear. They purify the womb. Sesamum oil is used for rubbing, sprinkling or soaking the body, and also in the following complaints, namely, in incised, lacerated, penetrating, contused and bruised wounds, in fractures, communited fractures, in ulcers or sores, caused by the application of caustics, or cautery, or by burns, in dislocations, compound fractures, or when a part is crushed, or bitten by animals or serpents. This oil is used for filling the bladder, nose, ears, and eyes, and it is used also with the food and drink for the relief of deranged or excess of the humour air.

Castor oil is sweet, heating, acrid, and pungent, with an astringent secondary taste. It increases digestive power, it purifies the vessels of the body, it is good for the skin, and it increases strength; in the process of and after digestion it acquires the sweet taste. It preserves youth, and purifies the vagina and semen. It prevents diseases and it preserves one's health, and improves the intellect, the complexion, the memory and the strength. It diminishes the humours air and phlegm, and removes bad humours from the lower parts of the body, that is, it acts as a purgative.

The oils obtained from the fruits of the undermentioned plants are pungent, light, penetrating and laxative; they have the cooling energy, and in the process of and after digestion, they acquire the acrid taste; they relieve the deranged humours air, and phlegm, and cure intestenal worms, skin-diseases, urinary complaints, headaches, etc.

Nimba,	Melia Azadirachta.
Atasí,	Linum usitatissimum.
Kusumbha,	Carthamus tinctorious, safflower.
Múlaka,	Raphanus sativus, Garden Radish.
Jímútaka, = Divitada,	Andropogon serrata.
Vṛikshaka, = Kutaja,	Holarrhena antidysenterica.
Kṛitavedhana,	Luffa amora.
Arka,	Calotropis gigantia, or procera syn. Asclepias gigiantia.
Kampillaka,	Mallotus Philippensis, syn. Rottleria Tinctoria.
Hastikarṇa,	Butea superba, or Racemes communiee.
Pṛithvíká,	Elettaria cardamomum.
Pílu,	Salvadora Persica.
Karañja,	Pongamia glabra, syn. Galichepa Indica.
Ingudí,	Balanites Roxburghii.
S′igru, = sobhanjana	Moringa pterygosperma.

Sarshapa,	Mustard seeds.
Suvarchalá,	Cleome viscosa, syn. Polanisia icosandra.
Vidanga,	Embelia Ribes.
Jyotishmatí,	Cardiospermum Halicacabum.

Amongst the oils of these vegetable substances, the linseed oil is sweet, it increases the strength and diminishes the humour air. In digestion it is heavy, it increases the humour bile, it is also heavy, heating and oily or demulcent. It is injurious to the eyes. Mustard oil is light, acrid and attenuant, it increases digestive power, reduces the humours phlegm and air, and fat and it destroys intestinal worms, relieves prurigo and other skin diseases. The oil obtained from the seeds of *Iñgudí* (*Balanites Roxburghii*), is slightly bitter, and light; it injures the eyesight, semen and strength, but it is useful in destroying worms and relieving skin diseases. Safflower oil increases all the humours, it acquires acrid taste, it is heavy of digestion, is bad for the eyes and induces internal hæmorrhages. It is pungent and it causes burning sensation in the throat and stomach.

The oils obtained from the undermentioned plants, are sweet and in the process of, and after digestion they possess the sweet or cooling energy. They relieve the deranged humours air and bile, and promote the urinary and alvine discharges and the secretion of tears from the eyes. They are cooling in their effect and they cause appetite to fall off.

Kirátatikta,	Ophelia Chirata.
Atimuktaka,	Ougenia dalbergioides, syn. Duller
Vibhítaka,	Terminalia Bellerica.
Nárikela,	Cocos nucifera.
Kola,	Zizyphus Jujuba.
Kshoda,	Salvadora Persica.
Jívantí,	Caelogyne ovalis.
Piyála,	Buchanania latifolia.
Karvudára,	Bauhinia variegata.
Súryavallí,	Gynandropsis pentaphylla
Trapusha,	Cucumis sativus.
Erváruka,	Cucumis Melo.

Karkáru,	Cucurbita Pepo.
Kushmáṇḍa,	Benincassa cerifera.

The oils obtained from the seeds of *Madhúka* (*Bassia latifolia*), *Káśmarí* (*Gmelina arborea*) and *Paláśa* (*Butea frondosa*) are sweet and astringent, and they diminish the humours bile and phlegm.

The oils obtained from *Tuvaraka* (**Cassia Tora**) and *Bhallatákv* (*Semicarpus anacardium*) are heating, sweet and astringent with a bitter secondary taste. They relieve the deranged humours air and phlegm, and are useful in skin diseases, in corpulence, in intestinal worms and in insensibility. They purify all the deranged humours in both the upper and lower parts of the body.

The oils obtained from the resins of *Sarala* (*Pinus longifolia*), *Devadaru* (*Cedrus Deodara*), Gaṇḍíra (a plant not identified), *Siṃśapá* (*Delbergia sissoo*) and *Aguru* (*Agwilaria Agallocha*), are bitter, acrid and astringent, they improve or correct unhealthy ulcers and remove intestinal worms, relieve skin diseases and diminish the deranged humours bile and air.

The oils obtained from the under-mentioned plants are bitter, acrid and astringent, they purify the vitiated humours in the lower parts of the body, they diminish the humours phlegm and air, and are useful in skin diseases, in intestinal worms and in healing of unhealthy ulcers.

Tumbí,	Lagenaria vulgaris.
Kos'ámra,	Mangifera sylvatica.
Dantí,	Baliospermum montanum.
Dravantí, = Mushikaparni ‖ Indurkani,	Salvinia Cucullata.
S'yámá,	Vernonia authelmintica.
Saptalá,	Stereospermum suaveolens.
Níliká,	Vitex Negundo.
Kampillaka,	Mallotus Phillippensis.
S'aṅkhiní, = Chorapushpi	Andropogon acicularis.

The oil obtained from *Yavatikta* = *Kalmeg* (*Andrographis paniculata*), is somewhat bitter and it relieves the derangements

30

of all the three humours, namely, air, bile and phlegm, it increases digestive power and improves the memory, it is attenuant and it prolongs life. The oil obtained from *Ekaishiká* = *Amvusta*, = *Patha*, = *A'kanadi* = *Nemuka* (*Stephania hernandi-folia*) this is supposed to be identical with Pareira Brava, is sweet and very cooling, it diminishes the humour bile, but it increases the humours air and phlegm. The oil obtained from mango seeds is very aromatic and it is slightly bitter, sweetish and astringent. It does not increase the humour bile like the juice of the mango, it diminishes the humours phlegm and air.

The properties and physiological actions of the several oils mentioned above, should be understood to resemble or to be equal to, to the properties and physiological actions of the various fruits from which they are obtained. All the vegetable fixed oils have here been briefly described. They all possess the properties natural to such oils, and they are supreme in reducing the humour air. Of all the oils, sesamum oil is the best. And as all the other varieties of so called oils possess the properties natural to all oils, they are reckoned in the same group, namely, of oils.

The fat and marrow of domesticated animals and of animals living in marshes and in water, are heavy, heating and sweet; they diminish the humour air. The fat and marrow[1] of quadruped animals with undivided hoofs, of carnivorous animals and of wild animals are light, cooling and astringent. They are useful in hæmorrhages. The fat and marrow of carnivorous birds and of birds in general, diminish the humour phlegm. Clarified butter, oil, fat and marrow are hard to digest, and they diminish the humour air in the order in which they are mentioned.

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[1] In the text of Suśruta two sorts of marrow are mentioned under the names of *meda* and *majjá*. The former term is applied to morrow of small bones and the latter to that inside large and thick bones. As there are no separate words to be found in English for these two sorts of marrow, I have included them both under the term marrow in the English translation.

HONEY.

Honey is sweet with an astringent secondary-taste, it is cooling but it causes dryness in the system. It increases digestive power and improves the complexion, the strength and the softness of the tissues, it is light, it adds to beauty, it is an agreeable tonic, attenuant, and acts as an aphrodisiac, it purifies the system, favours the union of wounded parts, by means of granulations and favours also the healing of ulcers, it acts as an astringent and is useful in eye-diseases, it is absorbed and it enters the finest vessels of the body, it diminishes the humour bile and phlegm, and fat, and it is also useful in urinary disorders, in hiccup, in asthma, in cough, in severe forms of diarrhœa, in vomiting, in thirst, in intestinal worms and in poisoning. It gives delight and removes derangements of all the humours; for its lightness, it diminishes the humour phlegm, and for its emollient qualities, sweetness, and astringency, it diminishes the humours bile and air.

There are eight varieties of honey, namely, ***Pauttika***, ***Bhrámara***, ***Kshaudra***, ***Mákshika***, ***Chhátra***, ***Arghya***, ***Audálaka*** and ***Dála***. ***Pauttika*** or the variety of honey collected by a sort of small bee, called ***Puttiká***, of all the other varieties, it is heating and drying because of its containing the poison of the bee. It increases the humours air and bile, and blood, it is intoxicating and it causes burning sensation in the throat, etc. ***Bhrámara***, or the honey collected by the large black bee, called ***Bhramara***, because of its mucilaginousness and excessive sweetness, it is considered heavy. ***Kshaudra*** or the variety of honey collected by a sort of small bee, called ***Kshudra***, it is especially cooling, light and attenuant. ***Mákshika*** or the honey collected by the common bee, is lighter than ***Kshaudra***, and it is said to be superior, or the best form of honey. It has a drying effect on the system, and it is especially useful in asthma and in other diseases. ***Chhátra*** or the honey collected by wasps in hives of conical shape resembling an umbrella in its form, is heavy, cooling, demulcent, sweet and digestive, it is useful in leucoderma, in hæmorrhages from the internal organs, in urinary complaints, and in intestinal worms, and it is of superior quality. *Arghya,* a sort of wild honey collected by a variety of large black bee, called *Arghá,* is very useful in eye-diseases; it diminishes the humours phlegm and bile, it is astringent and in the process of and after digestion, it acquires the acrid taste, it is bitter and tonic and it does not increase the humour air. *Audálaka* or the honey collected by white ants, it is astringent, heating, and acid, and it is of heavy digestion, it increases the humour bile, and it causes inclination for food, it improves the voice, and it is also useful in skin diseases and in poisoning, in the latter case, it acts as an antidote for it. *Dála,* a sort of wild honey collected by small bees of the colour of sapphire and called *Dála,* has a drying effect on the system, and it relieves vomiting and urinary complaints. New honey is laxative and strengthening, and it does not much reduce the humour phlegm, it also adds to one's strength. Old honey is astringent, and very attenuant, and it reduces fat and corpulence. Ripe or mature honey removes derangements of all the three humours, namely, air, phlegm and bile, unripe or immature honey is acid, and it causes derangement of all the three humours, namely, air, bile and phlegm. Being obtained from various objects, honey is endowed with numerous medicinal qualities, on account of its use being along with other medicines it is useful in a great varieties of diseases. As honey is collected from numerous different substances and also from different varieties of flowers, etc., and as it is in a state of possessing different and opposite properties, tastes, and energies, etc., and as honey is also collected or manufactured by poisonous bees, its use as a remedy for any complaint, is not necessarily accompanied or productive of any over excitement or undue heat. Owing to the circumstance of some honey in a condition of being mixed up with some poison, it should not be used in combination with any heating or exciting drugs. Honey acts as a poison when given to a person of excitable temperament, either in combination with any heating drugs or itself in a very hot or warm state. As honey is also collected from many delicate and cooling medicinal plants, its action is injuriously affected by being combined with any heating or exciting article. It is incompatible also with rain-water. Honey, in combination with any heating drug, is used for producing emesis. It is then neither retained in the stomach nor digested, and therefore does not prove injurious as it otherwise might have been. Unripe or immature honey is more injurious than any other unripe article we know of. The improper use of honey kills people as the use of any poison would do.

SUGAR-CANE AND ITS PREPARATIONS.

Sugar-cane juice is sweet and of easy digestion. It is cooling, and substantial, that is, full of nutritive materials, it is soothing, strengthening, it acts as an aphrodisiac and diuretic, it relieves or checks internal hæmorrhages, and excess of the humour bile, it increases the humour phlegm and helps the generation of intestinal worms. There are several varieties of sugar-cane, namely, *Pauṇḍraka*, *Bhíruka*, *Vam̲śaka*, *Sataporaka*,' *Kántára*, *Tápasekshu*, *Káshṭekshu*, *Súchipatro ka Naipála*, *Dírghapatra*, *Nílapora*, and *Kośaksit*. These varieties are founded chiefly upon their different thickness. I will now mention their respective qualities.

The juices of the varieties of sugar-cane called *Pauṇḍraka* and *Bhíruka* are cooling, sweet, nourishing, demulcent, laxative and strengthening. They increase the humour phlegm, and they do not cause heart-burn, and they are also heavy or difficult to digest.

The juice of the variety called *Vam̲śaká* possesses properties similar to the above two varieties, but with this exception that it has a little alkaline taste. The juice of the variety called *Satapora* resembles in its properties the last-mentioned variety, only with this exception that it is slightly heating and it diminishes the humour air. The varieties called *Kántára* and

Tápasa, their juices possess the same properties as *Vamśaka.* *Káshṭekshu,* its juice has the same properties which the above varieties possess, but in the way of exception this juice increases the humour air. The varieties called *Súchípatra, Nilapora, Naipálí* and *Dírghapatra,* their juices increase the humour air, reduce the humours phlegm and bile, they are astringent to taste and they cause heart-burn. The variety called *Kośakára* its juice is heavy or hard to digest, and it is cooling. It relieves internal hæmorrhages and consumption.

Sugar-canes are very sweet and more especially those portions of them that stand above ground and close upon their roots; they are also sweet in their middle portions; but at their ends or tops they have a saline taste. The juice of sugar-cane, when in the act of chewing pressed out by the teeth, increases the humour phlegm and diminishes the humours bile and air, it does not cause any heart-burn, it pleases the palate and it is strengthening. The juice of sugar-cane, pressed out by a machine, is not easily digested and causes heart-burn and costiveness. Boiled sugar-cane juice is laxative, it is demulcent and it is not so easily digested. It diminishes the humours phlegm and air.

Pháṇita or sugar is heavy or hard to digest, it is sweet, it is nutritive, but it does not increase virile power. It increases all the three humours, namely, air, phlegm and bile and causes eye-diseases. *Gura* or treacle has a sweet and slightly alkaline taste; it diminishes the humour air, but it does not diminish the humour bile, and it increases fat and the humour phlegm; it is tonic and acts as an aphrodisiac, it purifies the urine and blood, it is not cooling extremely. Old treacle is sweet, it diminishes the humours bile and air and it purifies the blood. As an article of diet it is superior to recently made treacle. Solid treacle, dry treacle, unrefined or coarse sugar and refined sugar, all of these are cooling, demulcent, difficult to digest, sweet, and they all act as an aphrodisiac, they relieve internal hæmorrhages and incessant thirst. They possess these properties to a large extent and also several other properties so natural to the order under which they are mentioned or included. The more they are purified the more they acquire the properties of being sweet, the properties of causing a sensation of coolness, the properties of causing demulcence, and the properties of causing laxativeness. The solutions of these various forms of sacchharine matter in water, should be understood to possess the same properties of the solid forms of which these solutions are made. Sugar is superior in its effects in proportion to its degree of purity, of dryness or of firmness and in proportion to its degree of freedom from alkaline taste. *Madhuśarkará* or sugar obtained from honey is useful in vomiting and in thirst. It is astringent and sweet, and it is of easy digestion; it is agreeable to the palate, and has a grateful, drying and detergent effect on the system.

Yavásaśarkará or the manna, obtained from the juice of *Alhagi Maurorum*, is sweet, and astringent, with a bitter secondary taste, it is laxative and it reduces the humour phlegm All the different varieties of sugar mentioned above relieve the sense of thirst, the sensation of burning heat of the body, internal hæmorrhages, vomiting and fainting.

Madhúkapushpottha pháníta or the sugar made from the juice of the flowers of *Bassia latifolia* have a drying effect on the system, they increase the humours air and bile, and they diminish the humour phlegm, and cause disease of the bladder. They are sweet and of easy digestion, they possess also the astringent taste.

SPIRITUOUS LIQUORS.

All spirituous liquors increase the humour bile and they are acid to taste, they increase digestive power and the inclination for food, and they induce pleasant associations, they are laxative and they clear the bladder, they reduce the humours phlegm and air, they are easily digested, they are pungent, and heating, and they cause an agreeably warmer burning sensation in the stomach and the throat, they excite the senses or render them acute, they are exhilarating, and they cause free evacuations from the bowels and a free discharge of urine. Now I solicit your attention to the consideration of the special qualities of the different varieties of spirituous liquors.

Márdvíka or spirituous liquor, obtained from grapes, is sweet, and it does not cause any heart-burn, it is not contra-indicated even in internal hæmorrhages. It is light, sweet, with a slightly astringent secondary taste and has a drying effect on the system. It is easily digested, it acts as a laxative and is useful in wasting of the body and in a chronic form of fevers.

Khárjúra or the spirituous liquor prepared from dates differs slightly from such liquors obtained from grapes; it is clear and agreeable, it increases the humour air and diminishes the humour phlegm; its use reduces corpulence or causes emaciation. It is light, astringent, sweet, exhilarating and aromatic and it stimulates the senses.

Surá or the spirituous liquor distilled from rice, increases digestive power and strengthens the system. It is useful in removing the excess of the humour air, it also removes consumption, cough, piles, chronic kind of diarrhœa, suppression of urine and debility from lactation or loss of blood.

A variety of spirituous liquor prepared from sugar and called *Svetá* from its white colour, is useful in consumption, in piles, in diarrhœa of a chronic kind, in asthma and catarrh; it increases the secretion of milk, it increases also the humour phlegm and it also increases of the quantity of urine; and it nourishes the blood and flesh.

Prasanná[1] or the clear upper portion of the liquor distilled from rice, it is useful in vomiting, in disinclination for food, in piles, in severe form of pain in the sides, in the region of the heart, and also in the region of the stomach, it removes also costiveness and tympanites. It diminishes the humours phlegm and air.

Yavasurá the spirituous liquor prepared from barley increases the humour bile, and to a small extent the humour phlegm, it has a drying effect on the system.

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[1] According to some, *Prasanná* means spirituous liquors distilled from rice, with the addition of medicinal herbs.

Madhuliká or the spirituous liquor prepared from Fennel fruits or seeds (*Fœniculum Vulgare*) increases a little the humour phlegm, it is heavy, and it causes costiveness and indigestion.

Ákshikí or the variety of spirituous liquor prepared from rice with the addition of the bark of *Terminalia Bellarica*, is digestive and it acts as an aphrodisiac. It has a drying effect on the system and it does not increase the humour phlegm. *Kohala* or the spirituous liquor distilled from the fermented barley-water with the addition of the ferment called *kiṇva*, is agreeable to taste and it acts as an aphrodisiac, it increases all the three humours, namely, air, phlegm and bile. *Jagala* or the spirituous liquor distilled from boiled rice with the addition of the ferment called *kiṇva*, is heating, drying and astringent. It relieves thirst, and it reduces the humour phlegm, and it also reduces inflammations or swellings.

Vakkasa is a weak vinous liquor prepared from rice, it causes cheerfulness in mind, it also causes a kind of diarrhœa, and a peculiar dyspeptic noise in the bowels. It removes the peculiar swellings caused by piles, and also the swellings caused by the vitiated humour air. It is binding, and it does not allow to be lax, and it increases the humour air; it promotes digestive power, it increases the intestinal and urinary secretions, and it is slightly intoxicating, it is heavy also.

Sídhugauḍa or the spirituous liquor prepared from molasses, is sweet and astringent, it increases digestive power and it promotes appetite.

S'árkara-sídhu or the strong liquor prepared from sugar, is sweet, agreeable and appetizing, it is of easy digestion, it possesses sweet taste, it causes pleasant sensations, it excites the senses, it diminishes the humour air, and it purifies the bladder.

Pakvarasa-sídhu or the liquor prepared from boiled sugarcane juice is agreeable, it is appetizing and digestive, it reduces inflammations, or swellings, and the humour phlegm, it improves the complexion and the strength, and it acts as a laxative and is useful as a remedy in piles and in excess of the humour phlegm.

S'ítarasika-sídhu or liquor prepared from unboiled sugar-cane juice is attenuant, it improves the complexion and the voice, and it is useful as a means to remove swellings, abdominal tumours, costiveness and piles. A variety of liquor called *Akshika-sídhu** is light, it is sweet, it acts as an astringent and it is useful in the treatment of jaundice, of anæmia, and also in the treatment of ulcers. It diminishes the humour bile and it purifies the blood. *Jámbava* or the liquor obtained from molasses with the addition of the juice of the fruit of *Eugenia Jambolana* is astringent, it increases the humour air and it stops or checks the secretions.

Surásava, this is a name given to a liquor prepared by a process of fermentation with the addition of spirits distilled from rice, fermented rice-water and certain other medicinal substances, is agreeable, it is pleasant, it is palatable and it acts as a diuretic also, it possesses the virtues of penetrating, or permeating through the tissues, it diminishes the humours air and phlegm, and the intoxication produced by its use, is lasting. *Madhvásava* is a sort of fermented spirituous liquor prepared with honey as one of its ingredients. It is bitter, and light, it acts as an astringent, and it is agreeable to taste, it reduces or removes swelling, it is penetrating; it does not increase the humour air and is useful in urinary complaints, in skin-diseases and in poisoning where it acts as an antidote.

A fermented spirituous liquor called *Maireya*, is prepared with these following substances, as its several ingredients namely, molasses, fermented rice-water called *Káñjika*, and the flowers of *Dhátakí* (*Woodfordia floribunda*). It is penetrating, it acts as an astringent, it is sweet to taste, it is heavy and intoxicating. It is useful in removing piles, and useful also in the disordered humour phlegm, in abdominal tumours, in intestinal worms, in corpulence, and in the deranged humour air. *Mṛidviká,* is a fermented liquor prepared with grapes and sugar-cane juice, it possesses a tonic action on the system, it diminishes the humour bile and it improves the complexion. *Madhúkapushpottha-sídhu,* the spirituous liquor prepared from molasses and the flowers of *Bassia latifolia,* increases strength and digestive power, it causes heart-burn and dryness of the system; it is astringent, it reduces the humour phlegm and it increases the humours air and bile.

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* *Akshika* is explained by an annotator as liquor distilled from sugar-cane juice with the addition of the bark of *Terminalia Bellerica*.

The properties of fermented liquors prepared out of the various other different sorts of tubers and fruits, should be understood to resemble or to possess the properties of the several vegetable substances from which they were prepared.

The use of new wine causes cold or watering of the eyes, it is heavy and it increases the humour air; it has an unpleasant smell, it possesses a bad taste, it is disagreeable and it gives rise to heart-burn. Old wine is aromatic, it is light, it is appetizing and it is agreeable, it causes inclination for food and it destroys intestinal worms. It clears the vessels of the body and it reduces the humours air and phlegm.

Arishṭas are fermented spirituous liquors prepared out of honey and treacle with the addition of some other medicinal substances; they possess more valuable properties than the ordinary liquors are known to do, because of their capacity for absorbing or imbibing the properties of the various drugs which go to their compositions. They diminish the excess of various sorts of humours, and they improve all sorts of corruption or vitiation of the deranged humours. They increase the digestive power, they diminish the humours bile, air and phlegm, they move the bowels, and they are useful in painful dyspepsia, in tympanites, in enlarged spleen, in ascites, in fever, in indigestion, and in piles. The *Arishṭa* prepared with the medicinal substances included in the group called *ippalyádi,* cures tumours in the abdomen and such other diseases as are caused by the deranged humour phlegm. The chapters that are devoted on the treatment of various diseases and on the different properties of several drugs, deal with the different preparations of *Arishṭa* that are suited for every particular disease which gets benefited by it. The many and various uses of *Arishṭas*, *Asavas*, and *Sídhus* should be prescribed by the physician after a due consideration of their different modes of preparations and of the properties of the various articles of which they were made.

Spirituous liquors of all sorts, when thick, possess a bad smell and a bad taste, they are hard to digest and they cause heart-burn and intestinal worms.

Newly made spirituous liquors are rendered disagreeable, when they are kept in vessels that are made of improper materials, they also appear pungent, and heating under similar circumstances. Such spirituous liquors should not be used when they are prepared with deficient quantities of medicinal substances in them, or when they are stale, or when they appear very transparent or glary, or when they are found remaining at the bottom of the pot. Spirituous liquors that are prepared with less than the proper quantities of materials required for their proper compositions, and when they are imperfectly made and when they appear mucilaginous, are difficult to digest and they increase the humour phlegm. If the liquors are prepared with an improper combination in their proportion of the several ingredients or if in their proportion more materials are included than what are actually necessary, the resulting liquors possess such properties that they increase the humour bile, they are hot, pungent, and frothy, they are disagreeable, heavy, and putrid, they cause heart-burn and acidity, they possess a bad taste and they generate intestinal worms. Stale liquors increase the humour air and vitiate all the three humours, namely, air, bile and phlegm. They possess all the defects of bad liquors.

Old spirituous liquors with developed tastes, are agreeable, aromatic, clear and intoxicating. They increase the inclination for food and reduce the humours phlegm and air. There are various sorts of spirituous liquors with different strength and tastes. Because of their fineness, sharpness, heat and diffusive power, they are soon carried to the heart by the digestive processes, and through the digestive tracks they spread into the arteries proceeding upwards, and thus they affect the senses and the mind, and rapidly produce intoxication. Persons of phlegmatic constitution are slowly affected by spirituous liquors. People of nervous temperament get intoxicated soon, and also persons of bilious temperament are quickly affected by spirituous liquor. Men of honest purposes or of gentle dispositions, when they betake themselves to intoxication, feel inclined for virtuous actions and charitable deeds, they also feel inclined for gaiety, for personal decoration, for music, for study, for auspicious acts and for sexual intercourse. People of excitable temperaments, when indulge in spirituous liquors, they make themselves miserable, they feel inclined for self-sacrifice, for bold acts and words, and to the desire for quarrelling. Persons who are of vicious dispositions when they take spirituous liquors, feel inclined to go to sleep, they feel also inclined to deal with falsehood, to deal with impure and malicious actions, and to feel prepared to satisfy a desire to go to places where one should not go.

S'ukta is a product of acetous fermentation, which is thus obtained, namely, by allowing a mixture of treacle, honey, fermented rice-water called *káñjika*, whey, etc., to undergo a process of acetous fermentation in an earthen pot which should be kept buried in a heap of paddy. It is digestive and light, it causes hoarseness of voice, it increases the tendency to internal hæmorrhages, and it relieves the deranged humour phlegm, it also relieves jaundice and intestinal worms. The liquor obtained by distilling *Sukta* is pungent, it is heating, and agreeable, it acts as a diuretic and after digestion acquires the acrid taste. It removes the humour phlegm, and it especially causes inclination for food. The several varieties of *Sukta*, which are prepared by the different combinations of treacle, sugar-cane juice, and honey, are lighter, in the order in which, they are mentioned; they all cause watering of the eyes or cold.

Tushámbu is prepared by a process of acetous fermentation of a decoction of the husks of fried *Máshakaláya* (pulse of *Phaseolus Roxburghii*). It is agreeable and it acts as a laxative, it increases digestive power, and it relieves heart-diseases, it relieves also jaundice, intestinal worms and chronic forms of diarrhœa. *Sauvíraka* is obtained by a process of acetous fermentation of a decoction of the grains of barley in a condition of husks. Its properties are similar to those of *Tushámbu*.

Dhányámla also called *Káñjika* is a sour liquid produced by a process of acetous fermentation of the powdered paddy mixed up in water. From the circumstance of its being prepared from paddy, it increases the digestive power; its external application relieves burning heat of the body. It is light and when it is taken internally, it reduces the humours air and phlegm, it also relieves thirst. From the circumstances of its pungency its use rapidly relieves deranged humour phlegm. Its use as a gargle removes the bad taste and the fœtor of the mouth. It keeps the bowels open and relieves the sense of fatigue. It promotes digestive power and the process of digestion, and it acts as a laxative. It is useful as a vehicle for oily enemata. It is beneficial to seafaring men.

URINE.

The urine of the cow, of the buffaloe, of the goat, of the sheep, of the elephant, of the horse, of the ass and of the camel are all pungent, acrid, and hot, they possess a saline secondary taste, they are light, they are purifying and useful in the deranged humours phlegm and air, in the treatment of intestinal worms, in corpulence, in poisoning where they act as an antidote, in abdominal tumours, in piles, in ascites, in skin-diseases, in inflammatory swellings, in disinclination for food, and in jaundice. Generally speaking they are agreeable and they increase the digestive power. Here are some verses: All the above mentioned varieties of urine are acrid, pungent, hot, light and they possess a saline secondary taste. They purify the system, they remove the humours phlegm and air, and they destroy the intestinal worms, they improve obesity, they remove the symptoms of poisoning, acting as an antidote for it, they remove piles, abdominal enlargements and tumours, also inflammatory swellings and disinclination for food. They are agreeable, they act as a laxative and a digestive as well; they increase the digestive power and remove jaundice.

Cow's urine is acrid, it is pungent, hot, and light; owing to its alkaline quality, it does not increase the humour air; it increases digestive power, it improves memory, it increases the humour bile and it diminishes the humours air and phlegm. It controls and cures colic or severe form of pain in the abdomen, it removes abdominal tumours, and tympanites, it is used as a purgative internally and it is used also in the form of an injection. In all cases where urine has to be employed as a medicine, cow's urine should be used by preference.

Buffaloe's urine may be used in tympanites, in inflammatory swellings, in abdominal tumours, in jaundice, in pile, in ascites, in colic, in skin-diseases, in urinary diseases, and also when the body is not thoroughly purified after the use of emetics, etc. Goat's urine is acrid and bitter, it slightly increases the humour air, and it relieves cough, asthma, consumption, jaundice and anæmia. Sheep's urine is alkaline, it is hot, bitter and acrid, it diminishes the humour air, and is useful in cough, in enlarged spleen, in ascites, in asthma, in consumption and in costiveness. Mare's urine is acrid, pungent and hot, it increases the digestive power, it removes the disorders of the humour air and the irregularity or the wanderings of the mind. It removes the humour phlegm, and is useful in intestinal worms and also in removing ring-worms. Elephant's urine is bitter, it is saline, laxative, and pungent. It reduces the humour air, it increases the humour bile, and it is used also in leucoderma.

Ass's urine increases the digestive power, it removes the humours phlegm and air and it also removes intestinal worms; it is pungent, and is also useful in mental diseases caused by poisons and in a kind of chronic diarrhœa. Camel's urine cures inflammatory swellings, skin-diseases, ascites, intestinal worms, piles, the deranged humour air and insanity. Human urine is useful to relieve poisoning where it acts as an antidote for the poison. Liquid substances have all been thus briefly described, they can be administered even to kings after the due consideration of the state of the country, the time, etc.

CHAPTER XLVI.

On Articles of Diet.

Sus'ruta, having reverently paid every mark of respect to Dhanvantari, what was due to him, thus addressed him. Revered Sire, it has been said before, that food is the source of all the strength, the complexion, the vital power and the energy of living beings, it has also been said that there are six tastes in the articles of diet, and that these tastes depend entirely upon, or reside exclusively, in the material objects. That the humours and tissues of the body are maintained, improved, increased or diminished by the use of material substances, and their tastes, qualities, energies and their digested product also contribute to the preserving and to the maintaining of the system. Food supplies the source of the origin, the maintenance and the destruction even of Brahma and of other gods also. By food alone the strength, the flesh and the health of the body are increased, and by food also its colour and senses are maintained in a clear or delightful condition. Irregularities in diet cause disease. Various articles of food possessing different properties are taken in and made the part and parcel of the system by the four following ways, namely, by chewing, licking, sucking and drinking. Hence we are desirous to learn the different properties of the various articles of diet, their tastes, properties, energies and the product after their digestion. Physicians cannot preserve the health or deal with diseases unless they are acquainted with the nature and properties of numerous material substances. Since food supplies the source and the very first principles on which all living beings depend entirely for their existence, oh revered Sire! now explain to us the rules and principles regarding the use of food and drink under every imaginable condition of life.

Dhanvantari being thus addressed, replied, My son, or dear Sus′ruta! I shall presently invite your attention to the subject you are so very willing to learn. The following are the varieties of *Sáli-dhánya* or Sali-Paddy that are produced in the winter season, namely, *Lahitaka Sáli, Kalama, Kardamaka Páṇḍuka, Sugandhaka, Sakunáhṛita, Pushpáṇḍaka, Puṇḍaríka, Mahá-śáli, Sítabhíruka, Rodhrapushpaka, Dírghaśúka, Káñchanaka, Mahisha-mastaka, Háyanaka, Dúshaka, Mahá-dúshaka.*

S′áli is a kind of rice that grows in winter months, it possesses the sweet taste, and it has the cooling energy, it is easily digested and it is strengthening. It diminishes the humour bile, and it slightly increases the humours air and phlegm, it is emollient and it causes slight constipation. Of the various varieties of *Sáli-dhánya* which have been mentioned above, that which is, called *Rakta-Sáli* or the Sali of blood colour, is the best. It rectifies all the three corrupted humours, it increases semen and also the quantity of urine, it improves the voice, the vision, the complexion and the strength of individuals. It is agreeable, it relieves exhaustion, and it is useful in the treatment of inflammatory affections, of fevers, and of all sorts of vitiations of the three humours and poisoning of tissues, where in the latter case, it acts as an antidote. The other varieties of *Sáli-dhánya* possess comparatively inferior qualities in the order in which they have been mentioned in the above list.

The following are the different varieties of *Shashṭika Dhanya;* it is another group or kind of paddy that is grown during the hot months, and in marshes, these different varieties are, namely, *Shashṭika Kañguka, Mukundaka, Pítaka Pramodaka, Kákalaka, Asanap Ushpaka, Maháshashṭika, Chúrṇaka, Kura-*

vaka Kedáraka, etc. These various varieties of rice possess sweet taste, and they retain this taste after their digestion. They diminish the humours air and bile, and they are nearly equal to the properties of the several varieties of winter rice that have been grouped under the division called *Sáli.* They increase the semen and the humour phlegm, and they nourish the body. Amongst the division of rice that grows during the summer season, the variety called *shashṭika* is the best. It is light and it has a slight astringent secondary-taste. It is mild it is emollient, it removes derangements of the three humours, namely, air, bile, and phlegm and it increases the strength and the firmness of the body. In the process of, and after digestion it has the sweet taste, it acts as an astringent or it acts as a constipating or binding agent, and it is nearly equal to the variety of winter rice called *Lohita-śali.* The other varieties of summer rice are inferior to one another in the order in which they are mentioned in their list.

The following are the numerous varieties of *Vríhi-dhánya* or that division of paddy that grows during the rainy seasons, they are namely, *Kṛishṇa-vríhi, Sálámukha, Jatumukha, Nandimukha, Lábákshaka, Tvaritaka, Kukkuṭáṇḍaka, Párávataka, Páṭala,* etc. The variety of paddy called *Vríhi,* is sweet and it is astringent, or binding, it is sweet also in the process of digestion and after it is completed; it is strengthening, it possesses no cooling property, and its use causes slight complaints of the eyes, it resembles very closely the *Shat* variety of paddy in its different actions; it produces constipation to some extent: amongst the different varieties of *Vríhi,* the *Krishna* |*Vríhi* or the *Vrihi* of black colour is superior to the rest, it is light and it is astringent in its secondary taste while the other varieties in their series are less and less inferior.

That variety of *Sáli* which, grows in a field under a direct sun *Dugdhayamobonau,* is light and it is easily digested, it is binding and it causes constipation, it causes scanty urine and it makes one irritable, it removes phlegm; when this variety of paddy grows again in a field of higher level, that is, in such fields where much water cannot accumulate, it possesses the properties to control the humours phlegm and bile, it is astringent or binding and it is also pungent, it is slightly bitter and sweet, it increases the humour air and it also increases the digestive power.

The variety of paddy called *Koidar* is sweet, it increases virile power and bodily strength, it prevents the humour bile to run to excess, it is slightly astringent and its use leaves very little fecal matter behind, it is heavy, it aggravates the humour phlegm and adds to one's semen.

Ropyathiropya is a kind of paddy named after the ways how it is cultivated; the process of cultivation is thus described, the seed paddy is first sown in a field of higher level and when these grow to young grasses, they are transplanted in the fulness of the season to plains of comparative low surface where water accumulates in sufficiency.

This variety of paddy is light and it is digested in no time, it is possessed of admirable properties, it causes no heart-burn, it relieves the humours, it strengthens the body but its use increases the quantity of urine.

The *Sali* variety of paddy that has just put forth its first two leaves, or that has been given to bud, if used as food, acts as a drying and constipating agent, this paddy is bitter and astringent, it removes excess of bilious secretions, it is easily digested and it generates the humour phlegm.

We have spoken at some length on the group of *Sali* variety of paddy, and now propose to point out which of them are beneficial and which are not, and we next proceed direct to take up the subject of *Kudhanya, Mudga, Phaseolus Mungo, and Masha*, *Phaseolus Roxburghii.* This, the Kudhanyaburgha, or the Kudhanya group forms the matter of our prssent discussion.

The Kudhanyaburgo or group.

Koradhusaka = Kodrava = Kodadhan.	Paspalum scrobiculatum, a species of grain eaten by the poor people.

Shyamaka.	A kind of grain, *Panicum Frumentaceum* also *Panicum Colonum.*
Nivara **= Uridhan.**	A wild variety of *Oryza Sativa,* Liun.
Shantanue.	A kind of paddy.
Tubora **= Adhyaki** **= Arhar.**	Another variety of paddy, or it is a pulse, *Cajanus Indicus* Spreng, syn. *Cytisus Cajan,* Liun.
Koddálaká	Another variety of Kadhanya, grows wild in many places, *Paspalum Kora.*
Priyangu	A variety of paddy, *Aglaia Roxburghiana,* W. A. Panick seed, *Panicum Italicum.*
Madhulika	A kind of paddy.
Nandimukhy	Another variety of Kudhanya.
Kurubinda	A fragrant grass, *Cyperus Rotundns.*
	A kind of barley. Or a kind of Kudhanya.
Govadhuka = Govaḍuka **= Gorrgorea.**	A kind of grain, *Coix Barbata.*
Varuka = Vuro	Another kind of paddy or it is a seed of some kind of *Gramine,* looks like sago grain in appearance or it is a sort of pulse, (*Dolichos catjan.*)
Todeparni	Another kind of Kudhanya.
Mukanda	Another variety of Kudhanya.
Vanuyova	A kind of paddy or rice obtained from the Bamboo, *Bambusa Arundenacea,* Retz.

These and several others constitute the Kudhanya group.

They are heating, they act as an astringent, they are sweet, they are drying and they are pungent in the process of and after digestion, they remove phelgm, they check all sorts of discharges and they aggravate the humours air and bile. Of the Kudhanya group there are four varieties, namely,

Kodrava=Koradhusaka = Kodadhan.	*Paspalum scrobiculatum*, a species of grain eaten by the poor people.
Nivara = Uridhan	A wild variety of *Oryza Sativa, Linn* .
Shyamaka	A kind of grain, *Panicum Frumentaceum* also *Panicum colonum.*
and	
Shantanu	A kind of paddy; these are astringent, sweet, cooling and they remove bilious secretions.
Priyangu	A variety of paddy, *Aglaia Roxburghiana*, W. A. Panick seed, *Panicum Italicum*, it consists of four different varieties, and they vary according to their different colours, namely, black, red, yellow, and white; in their qualities the red is superior to the black, the yellow is superior to the red and the white is superior to the yellow. They are drying and they remove excess of the humour phlegm.
Madhulika	A kind of paddy, it is sweet and cooling.

Nandimukha is soothing.

Varuka and *Mukunda* possess in a large measure the power of absorbing and drying up.

Vanuyova variety is drying, it is of heavy digestion, it is possessed of heating energy, it checks urinary secretions, it removes the humour phlegm, it is astringent but it aggravates the humour air.

Mudga	*Phaseolus Mungo.*
Vana mudga	A sort of kidney bean, *Phaseolus trilobus.*

Kolaya	A general name for laguminous seeds, chiefly of the order of *Phaseolus*.
Mukusta	A sort of rice, or a sort of kidney bean or a wild variety perhaps of the *Phaseolus Mungo* or *Phaseolus Aconitifolius*, Jacq.
Masura	A sort of pulse or lentil *Ervum hersutum* and *cicer lens*, Roxb. syn. *Vicia lens*. Benth.
Mungaloya	A sort of pulse, *cicer lens*.
Chanaka	Gram or Chick pea, *Cicer Arietinum*.
Sateeno	Peas or a particular kind of pulse.
Matur	*Resum Sativum*.
Triputi = Khesari	*Lathyrus Sativus*, Linn.
Haranuka	A kind of pulse.
Arhaky = Arhar	*Cajanus Indicus*, Spreng.

These and several other peas or beans act as astringents, they are sweet, cooling, heavy to digest, and they aggravate the humour air. They check the excretion of urine and the expulsion of fœcis and they control the humours bile and phlegm not to run to excess. Amongst these the Mudga (*Phaseolus Mungo*) does not help so much to the aggravation of the humour air, but on the contrary, the *Phaseolus Mungo* is beneficial to the eye sight. The *Mudga* in its green condition is more powerful in its actions, but the *Mudga* in other circumstances and the *Vana Mudga* possess almost the same qualities as the proper *Mudga*.

Masura	A kind of lentil (*Vacia lens*) is of easy digestion and it is binding.
Mukustoka	A kind of pulse, it generates intestinal worms, it aggravates very largely the humour air.
Adhaki = Arhar	*Cajunas Indica*, it removes the humours phlegm and bile and so also the humour air.

Chanaka	Gram or Chick pea, *Cicer Arietinum,* it aggravates the humour air, it is sweet and cooling, it acts as an astringent, it is drying, it controls virile power, it controls the humour phlegm also, and it arrests hæmorrhage.
	Haranu and *Sateena* are binding. With the exception of *Mudga* and *Musara* the rest of the pulses of this group cause flatulency.

Masha (*Phaseolus Roxburghii*) is heavy to digest, it increases the number of motions, and it also increases the discharge of urine. It is soothing, it is heating in its energy, it removes the humour air, it is sweet, it increases the secretion of milk in the breast, it is strengthening, it adds to one's semen and it aggravates the humour phlegm, it gives satisfaction or sense of satiaty. When this *masha* acts as an astringent agent, it checks the running of bowels, the frequent passing of water, and also the over discharge of phlegm. In the process of digestion it appears agreeable, sweet, and satiating, it increases the secretion of milk in the breast, and it causes one's inclination for food to increase.

Atmagupta = Alkusi	(*Mucuna Pruriens,* D. C. syn. *Carpopogon pruriens,* Roxb. *Roub.*) The alkusi fruits are equal to or similar in their medicinal properties to *Masha Phaseolus Roxburghii* and so also the fruits of *Kakanda* = *Mohanimba* = *Goranim* (*Melia Azedarach,* syn. *Melia simpervirens* are similar in their medicinal properties to the above that is, *Masha.*
Aronnomasha	*Vanomasha,* that variety of *masha* which grows wild, it is drying,

it acts as an astringent, and it does not cause any acidity or heart-burn.

Kulattha = Kulthi	(*Dolichos uniflorus*, Lomak, syn. *Dolichos uniflorus*, Roxburgh) it is heating, it acts as an astringent, it is of difficult digestion and it removes these two humours phlegm and air.

It causes destruction of semen, it removes urinary complaints such as are caused by stone or gravel, it removes abdominal tumours; it acts as an astringent and it cures both catarrh of the nasal mucus membrane and cough. It relieves constipation and it relieves also difficulty in passing water, it reduces corpulence or obesity of the body, it controls or removes piles, hiccough and asthma, it is blood making and bile making also. It removes the humour phlegm and it reduces complaints of the eyes. *Vunokulattha* is possessed of similar qualities as the ordinary kulatha, and it is more especially noted in this respect, because it acts slightly as an astringent, it is sweet, it is bitter, it checks discharges, it is heating, and it helps the formation of bile.

Tila (sesamum *Indicum*, syn. sesamum Oriental, Linn) it is of easy digestion, it is strengthening, it is soothing, it acts beneficially, as a poulticing agent for an abscess; it helps the generation of teeth, it improves digestive power, it improves memory, it causes the plentiful secretion of milk in the breast; it makes a splendid growth of hair in the head, and it lessens the quantity of urinary secretion; it is heavy, and it removes the excess of the humour air. Of all the different varieties of sesamum, the black variety is the best as far its medicinal properties are concerned the second best is the white variety, and the rest are of indifferent qualities.

Yava (*Hardeum Henastichum*, Linn) is an astringent, it is sweet, and it is cooling, it is of heavy digestion, it removes the excess of the humours bile and phlegm, it acts beneficially on abscesses as sesamum seeds act, being applied as a poulticing agent, it checks the secretions of urine, but its use as an article of food or diet causes a deposition of fœces in large quantities in the bowels and it aggravates the humour air. It gives solidity to the system, it increases or enhances the power of digestion, it helps memory, it adds lustre to the colour or complexion of individuals, and it makes the voice of people loud and clear. It is glutinous and it reduces obesity. It removes fat, and it expels wind from the bowels, it is highly drying in its effects and it helps the formation of blood and bile. All these properties are possessed almost equally by that other class or division of *Yava,* called *Atiyava* which, is somewhat inferior to the group or variety that has been described above.

Godhuma (*Triticum Vulgaric,* Linn) is the common wheat, it is sweet, it is heavy, it is strengthening, it gives solidity to the system, it increases semen, and it causes an increase of one's inclination for food. It is soothing, it is very cooling in its effects, and it removes the excess of the humours air and bile, it generates in some degree the humour phlegm and it acts as a laxative and it helps the union of wounds and ulcers.

Shimva is a legume, it is a pod, it is drying in its effects, it acts as an astringent, or a binding agent, it removes the effects of poison, where it acts as an antidote for it, and it removes swellings, it causes a loss of semen, a destruction of strength and an annihilation of eyesight; it causes heart-burn, it is of heavy digestion, it is sweet, it expels fœces, it increases the secretions of bile and it removes the accumulation or generation of wind in the bowels. It is of various different colours, namely, white, black, yellow, red and these different varieties, as indicated by these different colours, are possessed of different properties according to their places in this series. These varieties are heating in their effects, they are pungent to taste, and they are pungent also in the process of digestion. *Shimva* is divided into two kinds or groups, one is that which is gathered or collected from the roots of the creepers, where this variety

33

is produced or generated, and the other variety is that which is gathered or collected from the creepers themselves. All of these divisions of *Shimva* are sweet and strengthening, in both conditions, that is, when they are cooked and also when in a raw state, and they check the excess of the humour bile; their use as an article of food soon causes heart-burn, they are exceedingly heating, or drying, they lie heavy in the stomach and take some time before they become digested, and they aggravate the humour air. All pulses, and *shimvas* which, are also ~~a kind~~ of pulse, are alike of heavy digestion, and they cause one to be inclined for food.

Atasi (*Linum usitatissimum*, Linn) is heating, it is agreeable to taste, it removes excess of the humour air, it aggravates bilious secretions, and it is of heavy digestion.

Kusumbha = *Kusumphul* (*Carthamus Tinctorius*, Linn) safflower, is pungent to taste, it is pungent also in the act of digestion and after this process is completed, it removes the excess of the humour phlegm, it causes heart-burn and consequently it is calculated or inferred to be injurious. Mustard seeds, of the Sanapis Alba variety, are pungent, they are pungent even when digested and they are pungent also when after digestion they are absorbed and reduced into the fluids of the system, they increase both blood and bile. The black mustard seeds are equally as good as the white variety, these black mustard seeds possess all the medicinal properties of the white variety almost in equal degree, the black ones are more particularly penetrating, they are heating, they are drying in their effects, and they remove the humours phlegm and air.

The paddy that has been grown out of its proper season, that is, the paddy which has been grown when it is not due, or the paddy that has been destroyed by blights, or the paddy that has not been properly cultivated, or the paddy which has been grown in an improperly selected soil, that is, the soil not suited to the nature of the crops of paddy, or the paddy which is quite fresh from fields, with all the imperfections and injurious elements belonging to the new paddy adhering to it, the rice of such crops is not beneficial. New rice causes eye complaints, and after the expiration of full twelve months from the day the paddy was first gathered from the field, or in other words the rice of one year's standing, is useful and is a healthy article of food and such rice appears to be as light in digestion. Those rice that are in a condition of germinating their inner grains or in a process of budding or in a process of shooting forth their young leaves, are heavy, they cause heart-burn, they cause also constipation with accumulation of wind in the bowels and they cause complaints of eye-sight.

Thus we have discussed on the different and various varieties of rice, commencing from *Shalidhaya* and down to the grains of mustard seeds; and we have also pointed out the particular groups of rice that are to be used as food, and we have also pointed out what time should be allowed before they are to be considered fit for any use as food stuff for individuals.

Now we begin to discourse upon the different kinds of meat that forms part of human dietery. Thus there are six different groups of animals whose flesh is used as an article of diet, *viz.*, aquatic animals, animals frequenting marshy places, called (*Anupa*) such as buffalo, domestic animals, carnivorous animals, animals whose hoof is not cloven, barbaric or wild animals. The flesh of each of the animals is more useful or superior in quality than the other according to their place in the above series commencing from above downwards in an inverse order, that is, the flesh of *Anupa*, the animals that are known to frequent marshy places, is more useful or superior to the flesh of aquatic animals, and so forth. All these different groups can be divided into two chief subdivisions, *viz.*, wild animals and those that frequent marshy places. Again the wild animal group is divided into eight sub-groups. These are—

Janghala,	... Those animals that run sharp or quick being strong in the leg.
Viskira,	... A bird in general. To scatter before picking up as birds do in the act of eating.

Protuda,	... A bird of game, a falcon or hawk, one that torments (with the beak) before swallowing.
Guhashouya,	... A tiger, any animal living in caverns, the word comes from a cave as one's abode.
Prosuha,	... A beast or bird of prey. The word comes from one that means to be able.
Purnomriga,	... Wild animals lodging in the boughs of trees, a monkey. The word comes from boughs and deer.
Velashoah,	... A snake, a rat, any animal living in a hole or burrowing in holes, the word comes from one who lives or sleeps in a hole.
Gramya,	... A tame or domesticated hog.

Of these eight varieties of animals the first and the second varieties, that is, the Janghala and the Viskira varieties are the best.

Eno,	... A kind of deer or antelope, described as of black colour with beautiful eyes and of short legs.
Harina,	... A deer.
Risya,	... The painted or white-footed antelope.
Kurunga,	... A kind of deer.
Koral,	... A huge animal bearing projected teeth.
Kreetomala,	... A kind of deer.
Sharava,	... A fabulous animal supposed to have eight legs, and to inhabit particularly the snowy mountains, it is also a young elephant.
Kretombla,	... A kind of deer.
Shadunstau,	... A kind of animal possessing dog's tooth.

Presota,	... The porcine deer.
Arushka,	... A kind of animal.
Mrigamatrika,	... A female antelope.

These and several others form the group called *Janghala.*

The properties of the flesh of the above group of animals are here discussed, they act as astringent or binding agent, they are sweet, they are light, they are penetrating, and they are agreeable, they remove the excess of the humours air and bile, they also improve the condition of the urinary tract.

The flesh of the Eno group of deer is astringent, it is sweet, it is agreeable, it stops hæmorrhage and removes the order of diseases caused by cold and it removes fever also, it is binding, it sharpens the inclination for food and it is strengthening.

The flesh of the common deer group of animals is sweet, it is of easy digestion and it is light, it removes the excess of all the three humours, namely, air, bile and phlegm, it excites the digestive power, it is cooling in its effects, it causes constipation but it causes the urinary discharges free, and it is possessed of agreeable smell.

The Eno deer is of black colour, and the common deer group, or *hareena* group, is of copper colour; and those deer that are neither black nor copper colour, they are called *Kuranga,* it is a sub-group or a subdivision, amongst the deer group of animals.

The flesh of the group of deer called *Mriga Matrika* is cooling in its effects, it removes or stops hæmorrhage and it acts beneficially upon the following diseases, *viz.,* in *sannipatika,* it is a disease, where all the three humours, namely, air, bile, and phlegm are vitiated or aggravated, in consumption, in asthma, in bronchitis, in hiccough and in loss of inclination for food.

The *Viskira* group consists of the following animals:

Lava, ...	... A sort of quail.
Thetira,	... The francoline partridge.
Kapinjalah,	... A bird, the francoline partridge, the chataka.

Vurtura,	... All of these birds are a kind of quail.
Vurtuko,	
Vurtika,	
Naptrica,	... A kind of Viskira bird.
Vathika,	... A particular kind of bird mentioned in *Susruta*.
Chackorah,	... The bartaville or Greek partridge.
Kalavinka,	... A sparrow.
Maurah,	... A peacock.
Krokaroa,	... A sort of partridge called kaer.
Upachakra,	... A variety of the ruddy goose.
Kukutah,	... A wild cock.
Sarongo,	... The koil; or Indian cuckoo.
Shatapatra,	... The Saras or Indian crane, wood-pecker, a parrot, the king parrot or loory.
Kutry,	... A kind of bird.
Kurubhahu,	... A particular variety of bird.
Yabhaloka,	... A kind of bird.

These and several others belong to the group called *Viskira.* Their flesh is light, it is cooling, it is sweet, it acts as an astringent and it puts into order the humours when they become vitiated or aggravated in any way. The flesh of that particular variety of bird called *Lava* or quail is binding in its actions, it is light, it acts as an astringent, it is sweet, it causes memory to improve, and it causes also digestive power to be sharp, it is of heavy digestion, and it acts beneficially upon all the three humours, namely, air, bile and phlegm when they are aggravated and corrupted.

Tethera flesh, or the flesh of *Francoline,* is slightly heavy, it is heating in its effects, it is sweet and it is strengthening, it causes memory to improve, and it causes also digestive power to increase, it acts as a binding agent, and it controls all the three humours, namely, air, bile and phlegm when their inequality or excess or aggravation gives rise to any disease or any class of disorder, and it adds brightness to one's complexion.

The flesh of Gouro-tethera, or Tethera of white colour, possesses all the properties mentioned above belonging to the other variety of Tethera, besides these it, the Gouro-tethera, possesses some other properties, more particularly as its own, *viz.*, it removes asthma, hiccough, and the excess of the humour air.

The *Kapinjalah* flesh, the flesh of a variety of partridge called Chataka, checks all kinds of hæmorrhage, it is cooling in its effects, and it is light, it acts beneficially upon the class of diseases that are caused by cold and it acts beneficially also when the humour air is somewhat vitiated.

The flesh of *Krokarah*, another sort of partridge called Kaer, its flesh acts beneficially in checking hæmorrhages, it increases one's semen or his virile power, it improves the faculty of memory, it improves also the power of digestion and the strength of individuals, it is light, and it is agreeable also.

The flesh of *Upachakra*, another variety of ruddy goose, possesses all the above properties, and in addition to those, it possesses the following properties as its own, *viz.*, it is astringent, it is agreeable and it is saline to taste, it improves the condition of the skin, it improves the condition and the growth of hairs, and it improves the inclination for taking food.

The flesh of *Maurah*, peacock's flesh, is calculated to improve the condition of voice, it improves memory, it improves digestive power, it causes the eyesight to improve, and it improves the organ of hearing also, it is soothing and it is a heating agent, it removes the excess of the humour air, it causes the semen to increase, or the virile power to increase, it improves the voice and the strength of the body, it also makes the body to perspire.

The flesh of *Kukkuktah*, it is a kind of wild cock, as an article of diet is nourishing, its use removes the following diseases, *viz.*, the class of complaints arising from the vitiated humour air, it also removes consumption, vomiting and chronic fevers of some particular type. This variety of cock is divided into two kinds or subdivisions, the one is a wild variety and the other a domestic, the flesh of both these subdivisions possesses the same qualities almost in equal degree, the flesh of the domestic variety is somewhat heavy; this quality it possesses in excess of its other properties.

The following birds form the group called *Protuda*, it means a kind of bird of prey as a falcon or a hawk.

Paravata,	A pigeon, a dove.
Kapota,	A dove, a pigeon, especially the spotted necked pigeon.
Bhringaraja,	A sort of bird apparently the variety of shrike termed Malabar.
Shrike,	A rapacious bird, or bird of prey, ash colour above and white below. This bird has a strong bill toothed at the end and feeds on small birds and insects, whence it is known as the butcher bird.
Parabhretoka,	A crow, the Indian cuckoo which is supposed to leave its eggs in the nest of the crow to be hatched there. The word originally means nourished by a stranger.
Yastika,	A bird, the lapwing.
Kulinga,	The forktailed shrike, a kind of sparrow.
Greehakulinga,	A domesticated one of the above variety of bird.
Gokshoroka,	A kind of bird.
Didima,	A kind of bird.
Anaku,	Another kind or variety of bird.
Shutapatroka,	Indian crane or the Saras, a woodpecker, a king parrot or loory.
Matrinindica,	A kind of bird.
Bhadashee,	A kind of bird of the vulture class.
Shuka,	A parrot.
Sarika,	A kind of bird (*Turdus salica*, Buch.) but the name applies also to the Maina (*Gracula religiosa*).

Valguli,	A sort of bird.
Gerishalo,	A kind of bird belonging to the *Protuda* group.
Bhalla,	A kind of bird.
Dusoka,	A sort of bird.
Sugrihee,	The taylor bird (*Sylvia sutoria*).
Ghunjarita,	A wagtail.
Hareeta,	The green or wood-pigeon (*Columbia hariala*, Buch.).
Datuha,	A gallineeli, a water-hen, living in ponds &c. The chattoka, a sort of cuckoo.

These and several others form the *Protuda* group. The flesh of these above-mentioned animals or birds is astringent, it is sweet, it is drying in its effects, it generates the humour air, it removes the humours bile and phlegm, it is cooling in its actions, it reduces the quantity of urine, and it adds to one's strength in small measure. Out of the above list, the flesh of *Kankopata* (a kind of crow) acts as a purgative and it causes or brings on decomposition of the fœces soon, it also causes an aggravation and corruption of all the three humours, namely, air, bile and phlegm, it is astringent, it is agreeable, it is saline to taste, and it is heavy. The flesh of *Paravata* (pigeon) is calculated to check hæmorrhages, it is astringent, it causes the colour or complexion to be white, it is of easy digestion, and it is heavy.

The flesh of *Kulinga* (the fork-tailed shrike) is sweet and it is soothing in its effects, it causes the phlegm and the semen to increase, while the flesh of *Vashmakulinga* stops or checks hæmorrhage, and it causes semen to increase immensely.

Singha,	The lion.
Vaghra,	The tiger.
Vrica,	The wolf.
Tarakshu,	The hyena.
Riksha,	The bear.
Dhipi,	The onale or panther.

Marjara, ...	The cat.
Shrigal, ...	The jackal.
Mriga, ...	The deer.
Arvaruka, ...	A kind of wild animal.

These and several others form the group of animals that reside in under-ground holes, which under-ground holes are either natural or made or excavated by these animals themselves. The flesh of the animals above enumerated is sweet, it is heavy, it is soothing in its effects, it is strengthening, it removes the excess of the humour air, it is possessed of heating energy, it is always beneficial or beautiful in its effects upon the system, and it acts as beneficially on the complaints of eyes, and it also acts as beneficially on diseases of generative organs of both sexes, it also possesses a powerful action on the lower part of the bowels, of both sexes, such as their rectum and anus.

Kaka, ...	A crow.
Kanka, ...	A heron.
Kurura, ...	An osprey, also another species of eagle.
Chasa, ...	The blue jay (*Coracias Indica*) a kind of fisher (according to some).
Bhasa, ...	A vulture, a sort of bird described as a waterfowl. A cock.
Shashaghati, ...	A kind of bird of prey.
Ulluka, ...	An owl.
Chelle, ...	The Bengal kite (*Faleo chala*, Lok.).
Shana, ...	A hawk, a falcon.
Greedhra, ...	A vulture.

These and several others of similar nature form the group of birds called *Prosaha* (birds of prey).

The flesh of these birds is similar in quality to the flesh of the group of animals which is headed by the lion. That is, the flesh of these birds is as good as the flesh of the lion, or it is as good as the flesh of the tiger, or as good as the flesh of such other animals of like nature or description. These birds' flesh resemble in its effects the flesh of the other animals in the following respects namely, in taste, in energy, and in its condition or capacity of being digested, and it is beneficial, more particularly in such diseases which causes waste of the system as phthisis or consumption is known to do.

Mudgu,	An aquatic bird, the shag.
Museeka,	A rat, a mouse.
Vrikshashaika,	A squirrel.
Vakusha,	A kind of monkey.
Putughus,	A kind of sloth.
Vanorah,	A monkey.

These and several other animals form the group of animals which is called *Parnamriga* (a kind of monkey).

The flesh of these animals is sweet and it is heavy, it causes the virile power to increase, and it acts beneficially on eye-diseases, and on complaints of wasting nature, such as, consumption, pulmonary phthisis, &c., it causes the fœces and the urine to evacuate with ease, it also removes bronchitis, asthma and piles.

The river animals are of superior quality, as an article of diet, to the sea animals, because the river animals when used as food cause the system to be more firm and strong than the sea animals are supposed to do or are capable to do.

Shabedha,	A porcupine.
Shallyaka,	A hedgehog.
Godha,	An iguana or alligator or gossamp.
Sasa,	A hare or rabbit.
Brishadansa,	A cat or a rat, and a devourer.
Lopaka,	A *shakál.*
Lomasa,	A ram, one covered with or made of hair.
Kurna.	
Kadali,	A kind of deer, the hide of which is used as a seat, &c.
Mrigapriaka.	
Ajagara,	A large serpent (Boa constrictor).
Sarpa,	A serpent.

Mushika, ...	A rat.
Nakula, ...	The Bengal mungoose (*Viverra ichneumon*).
Mahabavru.	

These and several other animals form the group which is called *Velashaya* or the group of animals that reside or live in underground holes, allowing these holes to be of the size of their own body.

The flesh of the above animals when used as an article of diet causes fœces and urine to accumulate in their respective receptacles, it adds to one's strength, it is heating in its effects and it is agreeable, it is digested as mentioned before, it reduces excess of the humour air, it aggravates the humours bile and phlegm, it is soothing, and it removes bronchitis, asthma, and it prevents undue waste or weakness of the system when it is used as a food.

Amongst the flesh of these animals, the flesh of *Shoshaka*, a kind of hare or rabbit, is astringent, it is sweet, it removes the humours phlegm and bile, and because of its effects not being very cooling, it causes the humour air to increase or it causes it to run to excess.

The flesh of *Godha*, an Iguana or alligator is sweet when digested, this flesh acts as an astringent or a binding agent, and it is also pungent, it reduces excess of the humours air and bile, it causes one to be strong or to appear robust.

The flesh of *Shallyaka*, hedgehog, is agreeable to taste, when used as food it reduces excess of the humour bile, it is light as an article of diet, it is cooling in its effects and it acts as an antidote for poisons.

The flesh of *Pryaka*, a kind of spotted deer, is useful as an article of food in excess of the humour air, and the flesh of *Ajagara*, Boa constrictor, is useful for persons suffering from piles.

The flesh of serpents when used as an article of diet removes piles, and it also removes the excess of the humour air, it also removes intestinal worms and in addition to that, it removes the effects of that class of poison called *Dusheevisha,* a particular kind of poison which affects the cutaneous system in the form of eruptions. It acts beneficially upon the eyes, it is sweet when digested, and it improves memory, and it also improves the digestive power.

The flesh of *Durveekara,* a kind of serpent, or that group of serpents which bear hoods, improves the digestive power, it is pungent when digested, it is sweet, and its use as food is particularly beneficial upon the eyes, it causes easy removal or expulsion of the fœces, urine and excess of the humour air.

Ashva,	...	A horse.
Ashvatara,	...	A mule.
Go,	...	A cow.
Kharo,	...	An ass.
Ustra,	...	A camel.
Busta,	...	A goat.
Ourabhra,	...	A sheep.
Madapuchaka,	...	A particular species of sheep, which grow a fatty mass by the side of the end of the tail.

The horse, the mule, the cow, the ass, the camel, the goat, the sheep, the madapuchaka, and several other animals forming the group called *Grammya.*

The flesh of all the animals belonging to the above group removes excess of the humour air, it causes one to be strong, or it causes one to appear robust, it increases the humours bile and phlegm, it is sweet to taste, it is sweet also after digestion, and it improves the digestive power. The flesh of the goat, when used as an article of diet, is heavy, it is soothing in its effects, it reduces excess of the humours bile and phlegm, it is beneficial in its actions on the complaints of the eyes and of the nose, and it is not very cold. The flesh of the sheep, mutton, causes one to be strong and it causes also one to appear robust, it increases the humours bile and phlegm, and it is heavy.

The flesh of that particular species of sheep called *Madhu-*

puchaka, that is, that particular kind of sheep which grow or deposit a fatty mass at the end of its tail, possesses qualities similar to those of ordinary mutton, it also causes one's virile power to increase. The flesh of the cow, beef, reduces excess of the humour air, it removes asthma, bronchitis, running of the nose and of the mouth, and it removes also chronic fever, it is useful as food for persons possessing great digestive powers, it is useful as food also for those who undergo great bodily exertions, it is considered sacred, and it also removes excess of the humour air.

The flesh of animals with undivided hoofs is considered as good as the flesh of sheep, that is, the former kind of flesh possesses properties like the latter. It, when used as food, causes slight catarrh or running of the eyes, nose, &c., thus we finish the group called *Jangulum* or the group of wild animals.

The animals and birds that live away from the habitation of man, that is, animals and birds that are not domesticated, and also animals and birds that live away from rivers, ponds, &c., their flesh is calculated to cause slight catarrh, that is, when their flesh is made use of as an article of diet, it causes slight catarrh; and when the animals and birds live close to the habitation of man, and when they live close to rivers, ponds, &c., their flesh being used as food causes very severe catarrh of the nasal mucus membrane, and so forth.

The group called *Anupa*, which means, group of animals that frequent marshy places, is divided in five sub-groups.

They are (1) *Kulachera* which means, animals frequenting the banks of rivers, and grazing there. (2) *Pluba* those animals that swim or float on the surface of the water, or that dive beneath water. (3) *Koshastha* the group of animals that are sheathed, enveloped in a sheath, or a shell, as a snail. (4) *Padeeno* aquatic animals supplied with feet or footed aquatic animals. (5) And lastly *Muthsa*, fish.

Goja, ...	An elephant.
Govya, ...	A cow.
Mohisha, ...	A buffalo.

Ruru, ...	...	A sort of deer.
Chumorah, ...	...	A particular kind of cow whose tail is made into *chamur*, a kind of fan, or an instrument to blow wind with.
Sreemurah, ...	...	A kind of animal, according to some authorities, a young deer.
Roheetoka,	...	A kind of deer.
çulVuraha, ...	...	A bear.
Khudgee, ...	...	A rhinoceros.
Gokarna, ...	...	A kind of deer, a mule.
Kalopucha, ...	...	A kind of animal.
Kondra ...	...	A kind of animal.
Nyanku ...	...	A kind of deer.
Auronyagovya,	...	A kind of animal.

They belong to the *Kulochara* variety of the above group, it means animals that are in the habit of grazing on and frequenting the banks of rivers and ponds, &c. The flesh of these animals, when made use of as an article of diet, removes excess of the humours air and bile, it causes the virile power to increase, it is sweet when digested, and it forms or supplies a particular kind of fluid or juice for the system, it is cooling in its effects, it is strengthening and it is soothing, it increases the quantity of urine, and it also increases the humour phlegm.

The flesh of elephant is drying in its effects, it reduces one's corpulence, it is of heating energy, it causes aggravation or corruption of the humour bile, it is agreeable, it is acid and it is saline to taste, and it also removes excess of the humours air and phlegm.

The flesh of cow, or beef is soothing, it is sweet, it removes cough or consumption, it is sweet also when digested, it causes one's lust or animal passion to increase.

The flesh of buffalo is soothing, it is heating in its effects, and it is sweet, it increases one's virile power, it causes satiety, and it is heavy, it acts as a hypnotic, it is strengthening, it increases the secretion of milk in the breast, and it also increases animal passion, it hardens the muscular system.

The flesh of *Ruru* or venison, *Ruru* is a kind of deer, is sweet in its secondary taste, it is astringent, it removes excess of the humours air and bile, it is heavy, it also increases semen.

The flesh of *Chumorah*, a class of cow whose tail is used as an instrument for fanning the idols when worshipped; this class or kind of beef is soothing in its effects, it is sweet, and it removes excess of the humours air and bile.

The flesh of *Sreemurah*, that is, another kind of venison, is sweet, its secondary taste is astringent, it removes excess of the humours air and bile, it is heavy, it increases semen.

The flesh of *Varaha*, pork, when used as food, causes sweating, it causes corpulency, it increases the virile power, it is cooling in its effects, it is soothing, it is heavy and it gives satiety, it removes the sense of fatigue and it removes also excess of the humour air, it also causes strength to increase.

The flesh of *Khudgee*, the rhinoceros' flesh, removes cough or cold, and it removes the excess of the humour air, it is astringent and it is useful in the sacred ceremonies performed for the salvation of forefathers' souls; it causes one to live long and it checks the secretion of urine, it is also drying in its effects.

The flesh of *Gokarna*, mule's flesh, is sweet, it is soothing, it is soft and it is sweet, also when digested it causes the humour phlegm to increase and it stops hæmorrhage.

Hansa, ...	A goose.
Sarasa, ...	The Indian crane, (*Ardea sibireca*).
Krouncha, ...	A kind of heron (*Ardea jaculator*, Buch.).
Chukravak,... ...	The ruddy goose (*Anascasarca*).
Kuraro, ...	The osprey.
Kadamva, ...	The drake, according to some the teal.
Karandava,... ...	A sort of duck.
Geevanjeevaka, ...	A kind of bird supposed to be a sort of pheasant.

Vaka,	A kind of crane (*Ardea nivea*).
Valaka,	A small kind of crane.
Pundoraka.	
Plava,	A sort of duck (*Pelicanus fusicollis*).
Shararimukha.	
Nandemukha.	
Mudgue,	An aquatic bird, the shag.
Uthkrosha,	A kind of osprey.
Kachaksha.	
Mullikaksha,	A sort of goose with legs and bill coloured brown.
Shuklaksha.	
Pushkarashaee.	
Kakonala.	
Kambue.	
Kukkutika,	A wild cock.
Megharava.	
Shethacharana.	A kind of goose.

These and several other birds of similar nature possessing the habit of frequenting both land and water form the group called *Plava*.

The flesh of the above animals, or more particularly the flesh of the above birds, is cooling, it is soothing, it is sweet, and it is sweet also when digested, it increases one's strength, it removes the excess of the humour air, it evacuates fœces and it discharges urine, it checks or stops hæmorrhage or any other discharge.

The flesh of the *Hungsah* or duck, is heavy, it is heating in its effects, it is sweet and it is soothing, it causes the voice, the complexion and the strength to increase, it adds to one's flesh and fat, it adds also to one's virile power, it removes the excess of the humour air.

Shankha,	The conch shell or the animal of that name.
Shankhanukha,	Small shell or a conch, the snail.
Shuktee,	A pearl oyster.

Niraloka,	A kind of fish.
Nundee,	A kind of fish.
Varalaka.	
Makarah,	A marine monster; confounded usually with crocodile or shark but properly speaking it is a fabulous animal: as a fish it might be conjectured to be the horned shark or the unicorn fish, but it is often drawn with the head and fore legs of an antelope and the body and tail of a fish.
Gorgoraka,	A kind of fish (*Pirnalodus gogara*, Ham.).
Chandraka,	A fish (*Chanda*, Ham.).
Muhamina,	A kind of fish.
Rajiba,	A large fish (*Cyprimes neloticus*, Buch.).

These and several others form the group called *Samudrika* or a group of sea fish.

The different kinds of fishes that live in sea water, are heavy, they are soothing, they are sweet, and they do not cause the humour bile to increase, they are heating, they remove the excess of the humour air, when they are used as food they add to one's virile power, they increase the quantity of fœces and they increase also the humour phlegm.

The sea-fish group when made use of as food, supplies or generates strength because they themselves live upon the flesh of other animals.

Those fishes that live in wells or live in smaller ones of that description are of superior quality to sea-fish group because the former remove the excess of the humour air, and those fishes that live in *Vepee*, a kind of artificial lake, are superior to sea-fish group because those lake fishes are agreeable when digested and they are of a soothing quality. The group of fish that live in rivers, move about by the movement of their head and tail, and the middle portions of their body are of heavy digestion.

The group of fish that live in *Saro*, a pool of water, and the group that live in *Thodago*, a large pond deep enough for the growth of the lily, are light and of easy digestion, more especially their head.

Those fishes that live close to the bank of ponds, rivers, and those that live upon fresh water or spring water, are, as a rule, heavy, that is, their flesh is not of easy digestion with the exception of certain portion of their head which is light.

The lower portion of the group of fish that live in *Sara* a kind of lake, are very heavy of digestion because the power of locomotion resides in the lower part of their body and consequently the upper parts of their body are rather of easy digestion.

Thus we have discoursed upon the group of animals or beings that ranges about in *Anupa* lands or marshy or watery places, they, as a rule, are calculated to deposit all sorts of impurities in the tissues or in the system, if they, that is, their flesh is used as an article of food.

Such meat which has been preserved by a process of drying, such meat that has been decomposed or putrid, such meat of animals that were diseased, such meat of animals that has somehow been poisoned, such meat of animals that have been bitten by serpents, or such meat that has been mixed up with any kind or sort of poison, such meat that has been pierced by any instrument, such meat of animals, that were too old, such meat of animals that were too young, that is, meat of animals below the age when their meat can be used or when their meat is considered fit for use, and lastly, such meat of animals that lived an unnatural life, these different varieties of meat should not be used, meat possessing qualities of the above description should not be used as an article of diet or for any other purposes such as for making medicated oils or medicated ghee. Dried or putrid or decomposed meat is not possessed of any potential energy or strengthening quality; diseased, or poisoned, or such meat that has been bitten by serpents, or also such meat that has been mixed up with any other kind of poison, these different kinds of meat should also not be used as their potential energy has been vitiated or corrupted, such meat that has been pierced by arrows should not be used as food, as its potential energy has been destroyed. Such meat of animals that were too old should not be used as a food stuff, because its potential energy has been exhausted, and such meat of animals that have been debilitated, should not be used as food, because its potential energy is too much limited, and such meat of animals that were too young should not be used as food because this meat possesses no potential energy at all; such being the conditions or the circumstances of these above mentioned different varieties of meat, their use as an article of diet is interdicted because they are likely to cause, or be the source of much bodily mischief instead of being good to the system.

The use of dried or preserved meat as an article of diet or food, causes the loss of desire for food, that is, the use of such meat as a food stuff causes or brings on dyspepsia, and its use as food causes also catarrh or running of nose, eyes, mouth &c., and such meat is also very heavy of digestion. The use of meat that has been poisoned or diseased, as a food material, causes or brings on death. The use of meat of animals, that were too young, causes cold or catarrh. The use, as food, of meat of animals that were too old, causes consumption, and asthma. The use of meat of such animals that have been suffering from any kind of ill-health causes all the three humours, namely, air, bile, and phlegm, to be aggravated. The use of impure meat as food causes copious vomiting, and the use of such meat that has been procured of debilitated animals causes the humour air to be aggravated.

With the exception of meat possessed of above conditions and descriptions, the meat of other varieties of animals are simply delicious.

Of the quadruped animals the meat of the female is superior; of the birds, the meat of the male is superior. The animals that grow to a large size or bulk, of them that are of smaller bulk the meat of such ones is superior, and the animals that grow to smaller bulk, of them the animals that are of larger size the meat of such ones is superior. Of animals of one group, that grow to a very large size or bulk, of them that are somewhat thin or lean, their meat is superior.

We now occupy ourselves to discuss or to point out the superiority of the meat according to the quarters of the body of animals from which each kind of meat is taken. But before betaking ourselves to the task of so pointing out each quarter of the body, it behoves us to discuss the superiority or the heaviness or the lightness of each of the following materials of the system, namely, blood, flesh, fat, bones, marrow, semen and juice, these seven are called *Dhatu*, each of them is superior or more heavy than the other inversely, that is, flesh is more heavy than blood and so forth. But semen is most heavy of the whole lot.

We now come to consider which meat is heavy and which meat is light according to their respective position in the body, out of the following places, the thigh, the shoulder, the chest, the head, the hind legs and the forelegs, the foot and the hand, the hip the back, the skin, the liver and the intestines, the head is supposed to be more heavy than the shoulder, the shoulder is more heavy than the chest, the chest again is more heavy than the back while the back is more heavy than the thigh.

Of the constituent parts of the body, the so-called *Dhatu* of the system, the semen, the marrow, the bone, the fat, the flesh and the blood, the first is deemed heavier than the second, and the second than the third, and so on. The middle portion of the body of all animals is heavy. In males the upper parts and in females the lower parts are particularly heavy.

The chest and neck of all the birds are specially heavy. The centre of gravity of the body of birds lies in the middle point because birds have to lift up the body in the air by means of their wings. The flesh of birds that live on vegetables and fruits, either chiefly or alone, is very drying, and the flesh of birds that live upon other animals or insects is supposed to contribute very largely to the growth of flesh and fat.

The flesh of birds that live upon fish, generates the excess of the humour bile, and the flesh of birds living upon paddy removes the excess of the humour air.

The flesh of the following group of animals are more and more light, or lighter and lighter as they are arranged in this list, they are also lesser and lesser the cause for aggravating the humour phlegm according to their respective position in this list, which includes all the different groups which will form the several subjects of our future discourse.

Jalachar,	Aquatic.
Anupa.	
Gramya,	Domestic.
Mangsybhojee,	Carnivorous.
Akushapha,	Animals with undivided hoofs.
Prosoha.	
Velovasha,	Animals living in holes.
Jangal,	Wild animal group.
Prothuda.	
Vishkurah.	

The flesh of these animals is of heavy digestion and it is less nutritive, which nutritive value is quite out of proportion or out of the standard measure for the flesh of the other group or class of animals.

In selecting any group or any individual animal for the purpose of using its meat, the best bodied and the full grown animal is to be chosen out of the whole lot, and the flesh is to be taken from the hepatic region.

In the absence of a standard sort of animal the second best, that is, middling sort in age and body is to be selected, and in the absence even of such an animal, one is to be chosen whose flesh is likely to prove delicious.

Thus we have pointed out in a systematic way the proximate age, nature of the body, the size or bulk, the habits, the constitution, the ways of living, the sex, the measure, the quantity and the inclination &c. of animals, these are the several points, and besides them there are other points as well, which should be taken into consideration in selecting an animal whose flesh can safely be made use of either as an article of food or for any other purpose, such as, for the purpose of being used in medicated oils and medicated ghee.

The next subject we propose to take up, is the group of fruits, thus :—

Dadima	Fruit of *Pomum granatum.*
Amalaki	Fruit of *Phyllanthus embelica*, syn. *Embelica officinalis.*
Kola	Fruit of *Zizyphus jujuba.*
Vadara,	*Pensidandum Sowa.*
Karkandhu.	
Souvera.	
Simvitikaphala	Fruit of *Dolichos.*
Kapitha,	Fruit of *Feronia elephantum*, Con.
Mathulanga,	Fruit of *Citrus medica*, Linn. var. *acida.*
Amra,	Fruit of *Magnifra Indica*, Linn.
Amrataka,	Fruit of *Spondias mangifera*, Pers.
Kuramurda,	Fruit of *Carissa carandas*, Linn.
Piyal,	Fruit of *Buchanania latifolia*, Roxb.
Lukucha,	Fruit of *Artocarpus lakucha*, Roxb.
Bhuva,	Fruit of *Dillenia Indica*, Linn.
Paravota,	
Vetraphala,	Fruit of *Calamus Rotang*, Linn.
Prachina, Amalaka,	Fruit of *Flacourtia cataphracta*, Roxb.
Tinteri.	
Kanipa.	
Koshamra.	
Amlika.	
Narungo.	
Jamlevra.	

These fruits and the other fruits of this group, are acid, they are of heavy digestion, they are full of heating energy, they generate an excess of the humour bile, they remove the excess of the humour air, they cause vomiting and they generate the humour phlegm. In their secondary taste they are astringent, and amongst these fruits, pomegranate does not cause an excess of the humour bile, it, the pomegranate, causes the digestive power to increase, it is agreeable to taste and it is binding, that is, it acts as a constipating agent. This, pomegranate, is divided into two divisions, one variety is sweet and the other is acid. The sweet one controls or removes the excess of all the three humours, *viz.*, air, bile, phlegm, while the acid variety destroys the excess of the humours air and phlegm.

The *Amalaki* fruit or *Phyllanthus embelica*, is sweet, it is acid, it is bitter, it acts as an astringent, it is pungent and it acts as a simple laxative, it preserves the eyes, and it removes the excess of all the three humours, and it adds to one's strength. This fruit removes the excess of the humours, because it is acid; its next action is that it removes or destroys the excess of the humour bile, this action is due to its cooling effects and to its agreeable virtues, and this fruit removes the excess of the humour phlegm because it acts as a drying and as an astringent agent. This *Amalaki* is the first of fruits, as it possesses all these above-mentioned properties.

The three fruits *Kurkundhee*, *Kola* and *Vadara* are more or less similar in their actions, all of them are a kind of *Zizyphus jujuba;* when they are in a raw state they cause the humours bile and phlegm to increase, and when they are ripe they are soothing in their effects, they are sweet, they are simple laxative, and they remove the excess of the humours air and bile, and lastly, when these fruits in their ripe state are allowed to stand over for some time or for some years they acquire the properties which properties act as an agent to allay one's thirst, they remove one's sense of fatigue, they causes one's digestive power to increase and these preserved fruits are also very light.

These two fruits *Souvera* and *Vadara* are also similar in their actions, each being a kind of jujube, they appear to be soothing in their effects, they are sweet and they remove the excess of the humours air and bile.

The *Simbitika* fruit belongs to a kind of *Dalichos*, it is astringent, it is agreeable to taste, it is binding and it is cooling in its effects.

The unripe *Kupitha* fruit (the fruit of *Feronia elephantum*) is injurious to the organ or to the instrument of voice, it removes the excess of the humour phlegm, it causes constipation and it removes the excess of the humour air, but this fruit in a ripe state reduces the excess of the humours phlegm and air, it is sweet, it is acid and it is heavy, it removes asthma, and bronchitis, it moderates the excessive desire for food, it allays thirst, and it improves the voice.

The *Mathulunga* fruit is a kind of *Citrus medica*, it is light, it is acid, it causes digestive power to increase, it is agreeable to taste, its skin or outer cover is said to be bitter and it is not easily digested, but this skin removes the excess of the humour phlegm. The inner pulp of this fruit is agreeable to taste, it is cooling in its effects, it is heavy, it is soothing, and this pulp is also useful in removing the excess of the humours air and bile. It causes the fat to deposit, and it removes the intestinal colics, it removes also the excess of the humour air, it stops or checks a tendency to constant vomiting and constant retching sensation, it removes the excess of the humour phlegm, it improves a loss of the desire for food; these retchings &c. disappear under its influence.

The *Kashara* of this fruit, that is, its stamen and pistil &c. are more particularly light, they cause digestive power to increase, and they cause also constipation, they also remove abdominal tumours and piles. The juice of this fruit possesses the following properties, *viz.*, it removes intestinal colics, it removes the loss of digestive power, it causes fœces and urine to be scanty, it also removes the loss of desire for food, it reduces the excess of the humours phlegm and air. Its particular use is indicated in removing the loss of desire for food. The undeveloped ones of this fruit, that is, those fruits that are hardly separate from the filaments, if used as food, aggravate the humours air and bile.

The *Amro* fruit, *Mangifera indica*, Linn., when fully ripe is agreeable, it makes the complexion bright, it increases the desire for food, it increases the quantity of blood of the system and it also improves the flesh and the strength of the body; in the secondary taste these *Amro* fruits are astringent, they are pleasant to taste, they remove the excess of the humour air, they are heavy and they make one corpulent, they do not vitiate bile, and they cause semen to increase, they cause the flesh and fat to be deposited, to such an extent, as to increase the bulk of the body, they are sweet, they are strengthening, they are of heavy digestion, or they sit rather heavy in the stomach.

The *Amrathoka* fruit, the fruit of *Spondias mengifera* is capable of increasing one's virile power if used as food, it is cooling in its actions and it aggravates the humour phlegm.

The *Lukucha* fruit, the fruit of *Artocarpus lukucha* causes all the three humours namely air, bile and phlegm, to aggravate, and it also produces indigestion being itself very heavy in the stomach, it destroys semen.

The *Kurmurduk* fruit, the fruit of the *Carissa carandus* is acid, it removes thirst, it causes the desire for food to increase, and it aggravates the humour bile.

The *Piyal* fruit, the fruit of the *Buchanania latifolia* is heavy, it is cooling in its effects, it is strengthening and it also removes the excess of the humours air and bile.

The *Bhava* fruit, the fruit of the *Dellinia indica* syn. *Dillinia speciosa*, is agreeable, it is pleasant to taste, it is astringent and it is acid, it also removes clammy mouth, and it removes also the excess of the humours bile and phlegm, it constipates, it causes heavy indigestion and it is also cooling.

The *Paravata* fruit is sweet, it causes the desire for food to reappear, it increases the digestive power, and under its effects the excess of the humour air disappears.

The *Buchin amalaka*, the fruit of *Flacourtia cataphracta*, it removes the effects of poisoning and acts almost in the same manner as *Neepum* a kind of *Asoca* or *Nil asoka* or a sort or species of *Ixora*.

The *Tinteri* fruit, the fruit of *Tamarindus indica,* when in a raw state, it removes the excess of the humour air and it causes the humour bile to increase and it causes as well the strength of the body to increase, but when in a ripe state, it acts as an astringent, it is heating in its effects, it causes the digestive power to augment, it causes the desire for food to increase and it removes the excess of the humours phlegm and air.

The fruit of *Koshammra* or *Mangifera sylvetica* possesses similar properties as *Tamarindus indica* but not to the same extent, that is, the properties of the latter are of a similar nature but of diminished degree.

The fruit called *Amlekaya,* another kind of *Tamarindus indica,* in its ripe state, it acts almost in the same fashion, that is, in the same way as other varieties of *Tamarindus* act, but with this exception that *Amlekaya* has a purgative action.

The fruit *Nareengo* is a kind of *Citrus aurenticum,* the sweet orange, it is slightly acid, it is sweet, it is agreeable, it clears away the impurities of the system and it causes the granulations to appear in an open sore, it also causes the inclination for food to increase, it removes the excess of the humour air, it is of difficult digestion and it sits heavy in the stomach.

The fruit *Jamvera,* a kind of *Citrus medica,* is heavy, it causes the humour bile to aggravate, it removes the excess of the humours air and phlegm and it also removes the following namely constipation, thirst, intestinal colic, cough, sense of nausea, vomiting and asthma.

The fruit *Ayravata,* another kind of *Citrus medica,* is acid to taste, it causes the teeth to be tender and it causes the blood and bile to increase.

Ksheravrikha phola Udumvera = Jauga dumar	*Ficus glomerata,* Wild. syn. *Covellia glomerata,* Meq.
Jamvava fruit = Kala Jam.	*Eugenia Jumbolona,* Lamk. syn. *Zizygium Jambolanum,* W. & A.

Rujadani fruit=Khirkherjur	Fruit of *Mimusops indica*, D. C.
Thodonah = Tuda = Tut	Fruit of *Morus indica*, Linn. syn. *Morus parvifolia*, Royle.
Tinduka = Gab	*Diospyrus embryopteris*, Pers.
Vakula=Bakul	Fruit of *Mimusops elengi*, Linn.
Dhanyana=Dhamani	Fruit of *Grewia elastica*, Royle.
Ashmantoka.	
Asvakarna = Sal	*Shorea robusta*, Gareth. Its fruit
Phulgu=Kakadumbar	Fruit of *Ficus hispida*, Linn. syn. *Ficus oppositifolia*, Roxb.
Parusha = Phalsa	*Grewia Asiatica*, Linn. Fruit of this tree.
Gangaruka = Gorukshchakulia = Nagavalah	Fruit of *Sida spinosa*, Linn., syn. *Sida alba*, Linn.
Pushkara Lotus	Fruit or seed of *Nelumbium speciosum* or *Nymphosa nelumbo*.
Vurtu = Anjasrienge Karkatasringa	Fruit of *Rhus succedanea*, Linn., syn. *Rhus acumenata*, D. C.
Vilva = Bale	*Ægle marmelos*, Corr.
Virutla	Fruit of a cucurbitaceous plant (*Mornordila monudelpha*).

These and several others form a group of fruits whose medical properties are thus described. These fruits are cooling in their effects, they remove the excess of the humours phlegm and bile, they cause constipation, and they are drying in their actions, they are astringent and they are sweet also. Of these fruits, the fruits called *Kshera vrikha*, *Ficus glomerata*, syn. *Covillia glomerata*, are heavy, they are cooling, they are astringent, they are sweet, and they are acid, they sit heavy in the stomach and they do not much aggravate the humour air.

The fruits called *Jamvava*, *Eugenia Jambolana*, syn. *Syzygium jambolanum*, cause the humour air to aggravate intensely and they remove the excess of the humours phlegm and bile, they also cause constipation, and they make urine scanty.

The fruits of *Rajadani, Mimusops indica,* are soothing in their effects they are agreeable, they are astringent and they are heavy.

The fruits of *Todana Inuda, Morus indica* syn. *Morus parvifollia* are astringent, they are sweet, they are drying in their effects and they remove the excess of the humour bile, and they causes digestive power to increase.

The raw or unripe *Tinduka* fruits, the fruits of *Drospyros glutenosa* syn. *Druspyrus Embryopteris,* Pers., act as an astringent, or as a binding agent, and their use aggravates the humour air. When in a ripe condition they are of heavy digestion, they are sweet, and they control the excess of the humours phlegm and bile.

The *Vakula* fruits, the fruits of *Mimosops elengi,* Linn., are sweet to taste, they act as an astringent, they are soothing in their actions, they cause a binding action on the bowels, their use make the teeth permanent or lasting, and in appearance they make the teeth of pure white colour as so many pearls.

The *Dhanona* fruits, the fruits of *Dhanvana* = *Dharmana griwia slastecio,* Royle, act as an astringent, they are cooling, they are agreeable and they control or remove the superfluous humours air, and phlegm.

The *Gangaruka* fruit, the fruit of *Gangaruka* = *Nagabala* = *Gorakchaulia* (*Sida spinosa,* Linn. syn. *Sida Alba,* Linn.) possesses properties similar or equal to the properties of fruits described above, and these properties are also similar or equal to the *Ashinuntoka* fruits. The fruits of *Ashinuntoka* are a kind of *oxalis ;* this group of fruits also possesses properties nearly equivalent to the properties of the above group of fruits.

The *Phalguja* fruit, the fruits of *Phalguja* = *Kakdambar* = *Kakdumur,* cause indigestion, and they sit heavy in the stomach. They are sweet, they are cooling in their effects, they are of heavy digestion, and when taken as food they soon bring on satiety.

The *Parusaka* fruit, the raw or unripe fruits of *Parusaka*

= *Phalsa* (*Grewia Asiatica*, Linn. are very acid to taste, they are slightly sweet and light, and they are possessed of an astringent secondary taste. They control or remove the excess of the humour air, but they aggravate, as a rule, the humour bile. When they are ripe they possess properties almost the same as the raw or unripe ones are known to possess with this exception that the ripe ones are somewhat sweet and they control the excess of the humours air and bile.

The *Pauskara*, the seeds of *Pauskara* = *Padma* (*Nilumbium speciosum*, Linn.) are sweet in the process of digestion, and they are sweet also when that process has been completed. They are cooling in their effects, and they stop or check internal hæmorrhage. They are agreeable, but they cause indigestion or they lie heavy in the stomach. They act as a strengthening agent, they are of heavy digestion and they aggravate the humour phlegm.

The *Bale* fruit, the fruits of *Ægle marmelos*, in their unripe state, produce, when used as food, a soothing effect on the system, they do not allow the humours air and phlegm to run to excess, they are sharp or penetrating, and they act as an astringent or binding agent, and they cause digestive power to increase. It is also stated that these fruits in their unripe state are astringent, pungent, and bitter. The same fruits, that is, the fruits of *Ægle marmelos* when ripe appear to be sweet, and they are sweet also in their secondary taste, they are heavy, and they lie in the stomach as an indigestible stuff, they cause the humours to be aggravated, they also cause heart-burn, and they generate fetid winds in the bowels.

The *Vimba* fruit and the *Ashvakarma* fruit. The fruits of *Coccinea indica*, W. A. syn. *Momordica monadelpha*, Roxb. which is *Vimba* and the fruits of *Shorea robusta*, Gaertn, this is *Ashvakarna* or *sal*, both of them cause the secretion of milk in the breast to increase, they control the excess of the humours bile and phlegm. They also remove thirst, burning sensation of the system, fever, biliousness, pollution or vitiation of blood, asthma, bronchitis and wasting or consumption.

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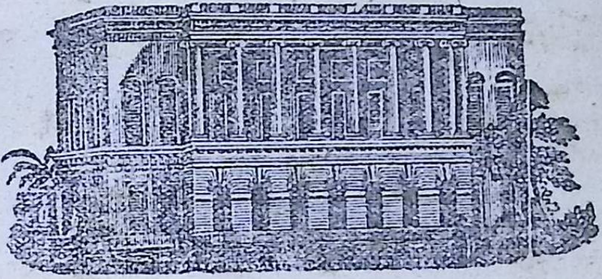

सुश्रुतसंहिता ।

THE SUÇRUTA-SAṀHITĀ

OR

THE HINDŪ SYSTEM OF MEDICINE ACCORDING TO SUÇRUTA.

TRANSLATED FROM THE ORIGINAL SANSKRIT

BY

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FASCICULUS I.

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TRANSLATION OF THE SUÇRUTA.

FIRST SECTION.

ON GENERAL PRINCIPLES.

(SŪTRA-STHĀNAM.)

THE FIRST CHAPTER.

On the Origin of Medical Science (*āyurvēda*).

(1)[1] Salutation to Brahmā, Prajāpati, the Açvin-pair, Balabhid, Dhanvantari, Suçruta, and the rest![2]

In the following chapter I shall describe the origin of the Medical Science, even as the blessed Dhanvantari related it to Suçruta. [1]

(2) Once Aupadhēnava, Vaitaraṇa, Aurabhra, Pauṣkalāvata, Karavīrya, Gōpura-rakṣita, Suçruta, and the rest[3] (thus) addressed the blessed, immortal Divōdāsa, king of Kāçī, the

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[1] For the convenience of reference the translation has been divided into paragraphs. On the other hand, the numbers, inserted in the text within angular brackets, indicate the paragraphs into which the Sanskrit original is traditionally divided. The two commentaries referred to in the annotations are cited thus: Bhā. = Bhānumatī, the commentary (*ṭīkā*) of Cakrapāṇidatta, and Ni. = Nibandha-saṁgraha, the commentary of Ḍallana Ācārya.

[2] By *Prajāpati* is here meant Dakṣa, a son of Brahmā, and father of Durgā. His celebrated sacrifice is referred to in § 7. *Balabhid* or 'the Slayer of Bala' is an epithet of Indra. See below, § 8.

[3] There are seven pupils: and by "the rest" are meant such physicians as Bhōja and others. Others, however, take Gōpura

Dhanvantari or 'Great Surgeon,'[4] as he sat in his hermitage surrounded by a number of Rishis: "O Blessed One! our hearts are pained to see around us human beings suffering from the painful attacks of bodily, mental, adventitious and natural diseases (see § 10), (and to observe) how, helpless in the midst of friends, they are consumed in fruitless endeavours (after cures) and loudly lament (their fate.) With a view to the relief of the diseases of those health-seeking people and with a view to the preservation of our own life, for the sake of doing good to mankind, we have come here with a desire to hear (from you) a brief exposition of the Medical Science. That science is the basis of one's well-being both in this world and the next. Therefore we have approached you, Blessed One, as pupils."

(3) To them replied the Blessed One: "You are welcome, my sons; there can be no question about the fitness of any of you to receive instruction! [2] (Listen) then! What is called the Āyurvēda (or Medical Science), is one of the minor portions of the Atharva-vēda.[5] Svayambhū or 'the Self-existent One' (*i.e.*, Brahmā, see §§ 8, 16), before even he created

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and Rakṣita to be the separate names of two men, thus making eight pupils, to whom, for "the rest," they add Nimi, Kāŋkāyana, Gārgya, and Gālava, thus making a total of twelve pupils. So Ni., but Bhā. only gives the first alternative. In the Bower Manuscript, Part I (verse 8), there is a list of ten Rishis, who applied to *Kāçirāja* for instruction. But the only name common to both lists is Suçruta. Moreover in the Bower MS. Kāçirāja is the proper name of the Rishi, while in Suçruta it is an epithet ('king of Kāçī') of Divōdāsa, and the latter is identified with the mythical Dhanvantari (see note 4). In the first chapter of the Caraka, another long but quite different list of 51 medical Rishis is given.

[4] *Dhanvantari* is derived from *dhanu*, a synonym of *Çalya-çāstra* or 'surgery,' and *antari* or 'going across'; that is 'one who has mastered surgery.' So Ni. He is said to have been the physician, or rather the surgeon, of the Dēvas whose wounds he healed in their war with the Asuras. See § 8 and footnote 13.

[5] The Atharva-vēda consists of the following nine parts: the *vēda*, *vākya*, *itihāsa*, five *purāṇas*, and *vaidyaka* or 'medical science.' So Bhā.

men, composed it in a thousand chapters and a hundred thousand verses (*çlōka*). Afterwards in consideration of the short life and small intelligence of men he re-cast it into eight divisions. These are

(1) Çalya or major surgery,
(2) Çālākya or minor surgery,
(3) Kāya-cikitsā or the treatment of the body,
(4) Bhūta-vidyā or the science of demoniacal possession,
(5) Kaumāra-bhṛtya or the management of children,
(6) Agada-tantra or the doctrine of antidotes,
(7) Rasāyana-tantra or the doctrine of alterative tonics,
(8) Vājīkaraṇa-tantra or the doctrine of aphrodisiacs." [3]

(4) The following is a brief account of each of these (eight) divisions:—

The first called *Çalya*[6] treats of the extraction of extraneous substances (from the body), such as grass, wood, stones, sand, iron, earth, bones, hair, nails, pus, and (retained) secretions; also the foetus within the womb. It teaches also the use of blunt and cutting instruments, caustics and the actual cautery, and the diagnosis of inflammatory swellings. [4]

The second called *Çālākya*[7] treats of those diseases and their cures which have their seat in the ears, eyes, mouth, nose, or any other part of the body situated above the collar-bone. [5]

The third called *Kāya-cikitsā*[8] treats of those diseases and their cures which affect the whole body, such as fever, diarrhœa, hœmorrhage, consumption, insanity, epilepsy, skin-diseases, morbid secretion of urine, and others. [6]

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[6] *Çalya*, lit. means any pointed object.

[7] *Çālākya*, lit., surgery performed by means of a *çalākā* or 'pricker' or 'awl.' *Çalākā* properly signifies the *paṭala-vēdhanī*, i.e., 'the instrument for piercing the tunics of the eye.' Hence *çālākya* or *çalākā-tantra* properly means 'surgery of the eye'; but it is here used in a wider sense. So BHĀ.

[8] *Kāya* is said, by BHĀ. and NI., to be a synonym of *agni* or 'digestion,' and for this Bhōja is quoted as an authority. Hence *kāya-cikitsā* would lit. be 'treatment of the digestion.' *Kāya*, however, as NI. adds, also means the 'body'; hence *kāya-cikitsā*

The fourth called *Bhūta-vidyā* treats of the mental derangements due to being possessed by a Dēva, or a Gandharva, or a Yakṣa, or a Rakṣasa, or an ancestral spirit or a Piçāča, or a Nāga, and the like. It also teaches how to cure these *grahas* (or seizures)[9] by means of religious offerings and other conciliatory performances. [7]

The fifth called *Kaumāra-bhṛtya* treats of the management of infants, of the removal of defects in the milk of wet-nurses, and of the cure of diseases caused by bad milk or by demoniacal seizure.[9] [8]

The sixth called *Agada-tantra*, or the doctrine of antidotes, treats of the diagnosis of the poisonous bite of snakes, insects, spiders, scorpions, mice, etc. It also teaches how to cure people suffering from any of these various poisons, or from poisoning due to an (unsuitable) combination (of food).[10] [9]

The seventh called *Rasāyana-tantra* or the doctrine of alterative tonics, treats of those medicines which preserve youth, promote (length of) life, intelligence, and strength, and give power to resist diseases. [10]

The eighth called *Vājīkaraṇa-tantra*[11] or the doctrine of aphrodisiacs, treats of remedies for the implenishing, restoring,

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means 'the treatment of the body.' Practically there is no difference.

[9] The number of these *graha* or seizures, is said to be eight. They are all due to various kinds of supernatural beings: *viz.*, (1) *dēva* or gods ('angels'); (2) *asura* or *daitya* or enemies of the dēvas ('devils'); (3) *gandharva* or heavenly minstrels; (4) *yakṣa* or guardians of hidden treasure; (5) *rakṣasa* or monsters (such as the ten-headed Ravaṇa); (6) *pitṛi* or spirits of departed ancestors; (7) *piçāca* or flesh-eating demons; (8) *nāga* or beings in serpent form. There exists also another class of *graha*, viz., the *bāla-graha* or 'demoniacal seizures affecting children.' They will be found enumerated below in chapter 3, § 8. They belong to the fifth division or the *kaumāra-bhṛtya*.

[10] The combined materials, by themselves, may be innocuous. Thus Nɪ. instances the combination of honey and clarified butter.

[11] The term *vājīkaraṇa* is variously explained. *Vājī* means 'strong,' 'impetuous'; hence *vājī-karaṇa* is a 'means of making

revigorating and recreating respectively of scanty, diseased, dried up, or wasted semen.[12] It also teaches how sexual desire may be stimulated. [11]

Such are the eight divisions of Medical Science.

(5) "Now, whom (of you) shall I instruct, and in which of these subjects?" They replied: "Teach all of us, Blessed One, beginning with the very first, the knowledge of *Çalya* or 'major surgery'." He said: "Be it so!" They again said: "Blessed One, seeing that we hold all the same opinion, Suçruta will put our questions to you, and while you are instructing him, we (others) will listen with attention." He replied: "Be it so!"

(6) ("Listen) then, Suçruta, my son! the object of the *Āyur-vēda* or 'Medical Science' is the restoration of those who are afflicted with diseases, and the preservation of the others in sound health. [12] *Āyuḥ* means 'life' and *vēda* means 'to know' or 'to attain.' Hence *āyur-vēda* is that science which is concerned with the nature of life and with the means of preserving it. On the first division of it I shall now instruct you in conformity with the sacred scriptures and with (the results of) observation, inference and analogy. Listen attentively!" [13]

(7) This division takes the first place, because the first (application of the healing art) was on the occasion of the healing of the wounds inflicted (in the assault on the sacrifice) and of the restoration of the head of the sacrificial animal.[13] For

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(sexually) potent.' But *vājī* means also a 'horse'; hence *vājī-karaṇa* is a 'means of making one like a horse' (in sexual potency). The latter is the usual traditional interpretation already given by Caraka. Both the above interpretations are given by BHĀ. and NI. The latter, however, adds a third, which makes *vājī* to be a synonym of *çukra* or 'semen'; hence *vājī-karaṇa* is a 'means of producing semen.'

[12] 'Scanty semen' refers to natural deficiency in youth under twenty-five, 'wasted semen' to deficiency due to excesses in middle life, 'dried-up semen,' to deficiency due to old age. 'Diseased semen' is due to diseases, and may occur at any age. So BHĀ and NI.

[13] The reference is to the celebrated sacrifice of Dakṣa. The commentaries (BHĀ., NI.) take this passage to contain refer-

it is related, that when Rudra had cut off the head of the sacrifice, the Dēvas approaching the Açvin-pair said to them: "Blessed Ones, you twins are admittedly the most excellent amongst us. It is you who must restore the head of the sacrifice." The twins replied: "So be it!" Then for their sake the Dēvas gratified Indra with a share of the sacrifice; and they restored the head of the sacrifice. [14] Moreover among the eight subjects treated of in medical science that (which concerns major surgery) is the foremost, on account of its doing its work quickly, because it must be done by the application of blunt instruments, sharp instruments, caustics, and actual cautery, and on account of its being equal (in value) to all (the other)

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ences to two distinct occurrences: (1) the great war of the Asuras with the Dēvas for the possession of heaven, (2) Dakṣa's sacrifice. But the context, which enters only into the details of the second ccurrence, renders this explanation improbable. The sacrifice of Dakṣa is related with some minor variations in the Mahābhārata and other works. The main story is that Dakṣa invited all the gods with the exception of his son-in-law Çiva or Rudra, who, in revenge, violently interrupted the sacrifice. He created a monster Vīrabhadra, who decapitated *yajña* or 'the sacrificial animal' (a deer), and wounded and maimed most of the guests. Finally Çiva was pacified by being given a share in the sacrifice, whereupon he restored all the injuries done in the encounter. According to some accounts, Dakṣa himself was decapitated, and as his head had fallen into the sacrificial fire, it was replaced by Çiva with a goat's head. All these accounts know nothing of any intervention of the Açvins as healers. This seems to be an imbellishment of the medical çastras, according to whom the Açvins were induced to undertake the restoration by a share of the sacrifice being allowed to Indra, who was their pupil (see § 8). The introduction of Indra is hardly sufficiently accounted for: one would rather expect the Açvins themselves to be gratified with a share in the sacrifice: moreover, one would expect the twins as well as Indra (all being dēvas) to be among the original guests and participators. The version of the story in the Mahābhārata seems to have more consistency, which, however, in stories of this kind is perhaps not to be expected. Or may it be suggested that *Indra* is an ancient misreading for *Rudra*?

subjects (put together).[14] Hence it is a means of attaining salvation, religious merit, heaven, fame, longevity, and a competency. [15]

(8) Brahmā was the first to promulgate (the science of medicine); from him Prajāpati (*i.e.*, Dakṣa) learned it; from him again the Açvin-pair; from the Açvins Indra; from Indra myself; and my duty it is (now), for the good of mankind, to communicate it here (in this world) to all who desire (to receive) it. [16] On this point there is (the following verse):—

> It was I, Dhanvantari, the primeval Deva,[15] that removed decrepitude, disease, and death from the Immortals (*i.e.*, the Dēvas); and now I have appeared on the earth, in order to teach here surgery as well as the other branches of medical science. [17]

(9) In this science by that aggregate, the animated body composed of the five elements,[16] is understood the *puruṣa* or 'the

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[14] Commentaries: "unless surgical work is done quickly, the patient suffers injury." The translation, above given, gives two reasons for the excellence of surgery; the passage, however, (as the commentaries point out) may also imply three reasons: "on account (1) of its doing its works (*viz.*, incisions, etc.) quickly, (2) of its employing instruments, etc., (3) of its being of equal value to the rest, because, as BHĀ. explains it enters into the subjects of all the rest. Both BHĀ. and NI. make mention of another recension of this passage, which simply reads *adhika-kriyā-karaṇāt* i.e., 'on account of its doing more work (than the rest),' instead of *āçu-kriyā-karaṇād=yantra* ...... *sāmānyāc=ca*. Both add that, even with this reading, the two clauses *yantra-çastra-kṣār-āgni-praṇidhānāt* and *sarva-tantra-sāmānyāt* must be understood as being implied, as giving the reasons for surgery doing more work than the rest.

[15] The *ādi-dēva* or 'primeval dēvas' are Brahmā, etc., as contrasted with the *karma-dēva* or 'those who owe their divinity to their extraordinary feats,' such as Indra and others, and with the *prayōjana-dēva* or 'those who owe their divinity to some necessity' such as Buddha, Skanda and others. So the Commentaries.

[16] The five *mahā-bhūta* or 'elements' are: earth, water, fire, air, and *ākāça* (or ether).

human being.' It is he (alone) to whom medical acts[17] refer, (and) he (alone) is the subject (of my discourse). Why? Because the world consists of two classes of beings. For the world is divisible into these two, the *sthāvara* or 'those that cannot move' and the *jaŋgama* or 'those that can move.'[18]

It may be added incidentally that (from the point of view of fitness for medicinal use) the world is also divisible into the two classes of the calorific and the frigorific; or, having regard to its great variety, it may be divided into five classes.[19] [18]

Now the (*jaŋgama*, considered as) *bhūta* (*i.e.*, from the point of view of *bhūti* or 'the manner of their birth') are divisible into four classes, namely those respectively termed *svēda-ja* or 'produced from warm moisture' *aṇḍa-ja* or 'produced from an egg,' *udbhij-ja* or 'produced from a split in the earth,' and *jarāyu-ja* or 'produced from the womb.' Among these the *puruṣa* or 'the human being' is the chief, because the others are intended for his service. Hence it is the *puruṣa* or 'the human being,' who forms the subject (of my discourse.)[20] [19]

(10) Any occurrence which causes him pain is termed a *vyādhi* or 'disease.' These (diseases) may be of four kinds: adventitious, bodily, mental, and natural. Of these the adventitious

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[17] Such as the administration of medicines, and the application of instruments, caustics, bougies, etc. (Commentaries).

[18] On the details of this classification, see below § 12.

[19] According as one or the other of the five elements (see footnote 16) predominates in their composition.

[20] The argument runs continuously through paragraphs 18 and 19 of the Sanskrit text. It is briefly this: the world is divisible into two classes, the stationary and locomotive. The latter class, which includes men, is subject to states of disease and health. Yet medical science concerns itself only with the human being. Why? Because man is the chief, all other living beings being subservient to him. This is clearly explained in BHĀ. But NI. does not seem to have grasped the argument quite accurately. In paragraph 18 it takes *puruṣa* to mean 'a sentient being,' including both men and *paçu* or 'animals,' while in paragraph 19 it takes *puruṣa* as restricted to the human being.

are injuries caused by violent contact.[21] Bodily diseases are caused by any derangement[22] of the air, or bile, or phlegm, or blood, or of all these (humours) combined, brought on by (irregularities in) food and drink. Mental diseases, showing themselves in the form of anger, grief, fear, joy, disappointment, envy, proneness to detraction, despondency, unfriendliness, lust, avarice, and such-like dispositions, are the result either of (violent) desire or (violent) aversion. Natural diseases consist in (a perversion of) the natural states of hunger, thirst, old age, death, and sleep. All these diseases have their seat in the body and in the mind.[23] [20]

(11) Depuratory and rectificatory remedies, observances regarding food, and corrective practices, properly employed, are the means for checking diseases.[24] [21]

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[21] Such as those produced by weapons, supernatural beings, poison, fire, wind, etc. (Commentaries). *Āgantu* lit. means 'arriving,' 'adventitious,' therefore a 'disease coming from the outside,' *i.e.*, 'caused by injurious contact with some external body.'

[22] That is: derangement of the proper proportion of the humours, either through excess or deficiency. (Commentaries).

[23] That is: either in the body (as fever), or in the mind (as wrath), or in both (as epilepsy). Besides, a disease affects the body first, and the mind afterwards, or *vice versa*. So the Commentaries.

[24] Depuratories are external or internal. The external are instruments, caustics, plasters, etc.; the internal are emetics, purgatives, enemas, errhines, and blood-letting. Rectificatories also are either external or internal. The former are liniments, douches, baths, unguents, applications to the head, liquid and semi-liquid gargles, etc. The latter are digestives, attenuants, nutrients, tonics, aphrodisiacs, antitoxics, etc. Food is of four kinds (having regard to the mode of consumption): what can be drunk, licked, swallowed, and masticated; or of three kinds (from the point of view of its eff[illegible] relieving deranged humours, curing diseases, and giving health and sustenance. Corrective practices have reference to the body or the voice or the mind. Bodily exercises are, according to BHĀ., walking, copulating, dancing, etc., according to NI., fasts, abstinences, etc. Vocal exercises are reading, singing, re-

(12) Now food is the sustenance of living beings and (the source) of their strength, colour, and vital power. (In order to be such) it depends on the six tastes; and these again exist in the material objects. But the material objects (also) serve as *ōṣadhi* or 'medicaments'; and the latter are of two kinds: *sthāvara* or 'stationary,' and *jaŋgama* or 'locomotive.' Of these the stationary ones are of four kinds; namely, *vanaspati* or 'trees that bear fruit but have no flowers,' *vṛkṣa* or 'trees that bear both fruit and flowers,' *vīrudh* or 'plants that grow in the form of a creeper or a shrub,' and *ōṣadhi* or 'plants that die after maturing their fruit.'[25] [22] The *jaŋgama* or 'locomotive beings' are also divided into four classes: the *jarāyu-ja* or 'those produced from the womb,' the *aṇḍa-ja* or 'those produced from an egg,' the *svēda-ja* or 'those produced from warm moisture,' and the *udbhij-ja* or 'those produced from a split (in the earth).' Of these the womb-born are the domestic animals, men, beasts of prey, and others.[26] The egg-born are the birds, all slow and quick-moving reptiles, and others. The moisture-born are the worms, insects, ants, and others. The earth-born are the cochineal insects, frogs, and others.

As to the 'stationary beings' (or plants), their bark, leaves flowers, fruit, roots, tubers, exudations, juice, etc., and as to the 'locomotive beings' (or animals), their skin, nails, hair, blood, etc., are the objects of use in medicine. [23]

To the class of *pārthiva* or 'minerals' belong the following:

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hearsing, etc. Mental exercises are thinking, meditating, calculating, etc. The term 'properly' refers to considerations of locality, time, age, etc. So the commentaries.

[25] Examples are: of *vanaspati*, the *Plakṣa* and *Uḍumbara* (or Ficus Tjakela and glomerata), etc.; of *vṛkṣa*, the mango, jāmun (Eugenia Jambolana) and other trees; of *vīrudh*, the *Vidārī*, (Ipomoea digitata), pepper, lovage, *Çālaparṇī* and *Pṛçniparṇī* (Desmodium gangeticum and Uraria lagopoides), etc.; of *ōṣadhi*, wheat and other cereals. (Commentaries).

[26] The commentaries explain that the domestic animals are placed first, because from the point of view of medicinal subserviency, which is here in question, they are the most important.

gold, silver, gems, pearls, realgar, earth, potsherds, and others.[27]:

(13) With reference to time we have the following varieties: breezy weather, calm weather, sunshine, shade, moon-light, darkness, cold weather, hot weather, rainy weather, day and night, fortnight, month, season, half-year, and other divisions of time. These, by their very nature, exercise an augmenting, or deranging, or relieving, or repressing influence on the humours (and the consequent diseases); hence a knowledge of them is necessary. [24] On this (subject) there are the (following) verses:—

> With regard to the diseases of men the above-mentioned four-fold group[28] of causes of derangement and relief has been laid down by the physicians. [25] Those diseases which are accidental are of two kinds: some affect the mind, others the body; and their treatment is also of two kinds. [26.] For those which affect the body, the treatment is the same as for bodily diseases. In the case of those which affect the mind, sounds and the rest of the (five-fold) group (of sensations)[29] of an agreeable nature bring relief. [27]

(14) Thus far these four terms have been expounded: *puruṣa* or 'the human being,' *vyādhi* or 'disease,' *auṣadha* or 'medica-

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[27] The commentators are much exercised to account for the reason why the *pārthiva* or 'minerals' are not included as a third class of *ōṣadhi* or 'medicaments,' in spite of their being clearly intended to be a kind of medicaments. Nothing satisfactory is said by them. But BHĀ. cites Caraka as giving a threefold division of medicamentary objects, *jaṅgama* or 'animals,' *udbhida* or 'plants' and *pārthiva or* 'minerals.' It almost looks as if in the original system of Suçruta, the minerals were not considered medicinal, but were only introduced afterwards.

[28] Namely, stationary beings, locomotive beings, minerals, and time, according to the physician Jaijjhaṭa; or food, practices (see § 11), minerals, and time. BHĀ. adopts the former, NI., the latter alternative. Neither seems quite satisfactory, though to me the former appears more consonant with Suçruta's text as it now stands.

[29] The five sensations or sense-objects are: sound, touch, form, taste, and smell.

ment,' and *kriyā-kāla* or 'time with reference to its suitability for treatment.' Here the term 'human being' includes not only the whole of the materials which compose his body and which (as stated before in § 9) are themselves composed of the (five) elements,[30] but also the constituent parts of its major and minor limbs,[31] such as the skin, flesh, blood-vessels, nerves, and so forth. The term 'disease' includes not only diseases due to air, or bile, or phlegm, or the blood, or to any of these combined, but diseases of every description (incl. adventitious). By the term 'medicament' must be understood material objects as well as their *guṇa* or 'elementary properties,' *rasa* or 'tastes,' *vīrya* or 'sensific powers,' and *vipāka* or 'digestibility.'[32] The term 'treatment' (*kriyā*) is the general one for all medical operations, such as cutting, etc., and administering oils, etc.[33] The term 'time' (*kāla*) refers to the variety of time (which may be suitable) for any particular (medical) operation.[34] [28]

(15) Here comes in (the following verse) :—

Herewith I have declared (to you) succinctly the germ
or quintessence of the (whole) therapeutical science. I
shall (now) give (you) a detailed exposition in one hundred
and twenty chapters. [29]

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[30] Here the *dravya* or 'materials' are the seven *dhātu* or secondary elements: semen, blood, chyle, flesh, fat, marrow, and bones; while the five *bhūta* (or *mahābhūta*) or primary 'elements' are earth, fire, water, air and *ākāça*. So the commentaries. Usually, however, the term *dravya* connotes the 'material objects,' as distributable among the five classes of *bhūta*; as in ch. 3, § 2 [40], ch. 4, § 2.

[31] Major limbs, such as the head; minor limbs, such as the chin. (Commentaries).

[32] For an exposition of these four terms, see below chapters 40 and 41.

[33] Surgical operations, such as cutting, opening, scarifying, probing, extracting, bleeding, sewing. Again, oils, sudorifics, emetics, purgatives, enemas, fumigations, errhines, gargles, digestives, alteratives, and so forth. (Commentaries).

[34] Thus, the forenoon is the time suitable for the administration of emetics, and the early morning for that of purgatives. So Ni.

These one hundred and twenty chapters will be (arranged) in five sections with reference to the subjects (taught in them): the *Sūtra-sthāna* or 'section on general principles;' the *Nidāna-sthāna* or 'section on pathology,' the *Çarīra-sthāna* or 'section on anatomy;' the *Cikitsita-sthāna* or 'section on therapeutics,' and the *Kalpa-sthāna* or 'section on toxicology.' Afterwards I shall expound the remaining subjects in the *Uttara-tantra* or the 'supplementary treatise.' [30]

(16.) Here comes in (the following verse) :—

> Whoever studies this (science), promulgated by Svayambhū (or Brahmā) in primeval times, and made known (to the world) by the king of Kāçī (or Benares), that meritorious person is reverenced on earth by kings, and after death attains a position (in heaven) equal to that of Indra. [31]

THE SECOND CHAPTER.

ON THE INITIATION OF A PUPIL. [1]

(1) A physician may admit as a pupil anyone of the Brāhman, Kṣatriya, and Vaiçya castes who is of (good) family,[35] youthful, observant of caste-rules, persevering, clean (in body and mind), well-bred,[36] modest, energetic, strong, attentive, contented, possessed of a good memory, intelligent, and resourceful. His tongue, lips, and teeth should be delicate. His mouth, eyes and nose should be straight. His disposition, speech, and deportment should be agreeable. And he should be able to bear pain. Any one with opposite qualities should not be admitted as a pupil. [2]

(2) When a Brāhman (physician) performs the initiation ceremony, (he should act in the following manner.)[37] On an auspi-

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[35] So NI., but BHĀ. interprets: 'one who belongs to a medical family.' NI. also gives this as an alternative.

[36] *Ācāra* appears to have been wanting in BHĀ.'s recension of Suçruta's text. It does not comment on it, and interprets *çīla* as 'well-bred.'

[37] I have adopted the reading *upanayanīyas=tu brāhmaṇaḥ* or

cious *tithi* or 'lunar day,' *karaṇa* or 'lunar half-day,' *muhūrta* or '30th part of a lunar day' and *nakṣatra* or 'lunar asterism,' in an auspicious direction,[38] on clean and even ground, a sacrificial spot, four cubits square, should be smeared with cowdung and spread with *darbha* grass (*Poa cynosuroides*). Then the gods should be honoured with flowers, fried rice, rice, and jewels, likewise the (officiating) Brāhmans, and the (witnessing) physicians. Then, having marked off (the sacrificial square) and besprinkled it (with water), (the officiant) should place the Brāhman (pupil) on his right, and kindling before himself a fire with the wood of Khadira (*Acacia Catechu*), Palaça (*Butea frondosa*), deodar and bel, smeared with curds, honey and clarified butter, or (with the wood) of the four trees with a milky sap, *viz.*, the Nyagrōdha (*Ficus bengalensis*), Uḍumbara (*Ficus glomerata*), Açvattha (*Ficus religiosa*) and Madhūkā (*Bassia latifolia*),[39] (smeared in the same way), he should offer on it oblations of clarified butter with a sacrificial ladle according to the Darvīhōma rite.[40] Next with the mystical syllable and the great

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'the initiating Brāhman.' Here *upanayanīyas* has the active sense of *upanētā*. I follow herein Bhā. But Ni. adopts the reading *upanayanīyaṁ tu brāhmaṇaṁ* or 'the Brāhman (pupil) who is to be initiated.' But this reading does not well agree with the subsequent context *brāhmaṇaṁ sthāpayītvā* 'having placed the Brāhman (pupil).' The case of the Brāhman physician and the Brāhman pupil is here only given as an exemplar of the initiation ceremony. The commentaries explain that they are only selected *honoris causa*, but that the same ceremonies take place in the case of Kṣatriyas or Vaiçyas ; only in the case of a Çūdra the ceremony is modified, as noted in § 3. They add, however, that of whatever caste the medical teacher who arranges for the initiation may be, the initiation rites themselves must be performed by a Brāhman.

[38] *I.e.*, towards the East or North. (Commentaries.)

[39] The members of this group of trees are variously enumerated. Some give the Plakṣa (*Ficus Tjakela*) in the place of the Madhūkā. Some give the number of the group as five.

[40] The *Darvīhōma* rite is well-known as that of Brāhmans who are *chandōvid* or 'proficient in incantations.' So Ni.

mystical words[41] he should pronounce *svāhā* in the name of every deity and every Rishi, and cause the pupil to do the same.

(3) A Brāhman may give initiation to a pupil of three castes, a Rājanya (*i.e.*, Kṣatriya) to one of two castes,[42] but a Vaiçya to one of the Vaiçya caste only. Some say that a Çūdra, if he is of (good) family and (good) character, may also be admitted to instruction, but without the initiatory rites.[43] [3]

(4) Then leading the pupil three times round the fire[44] and invoking the fire as witness, he should thus address him: "It must be your inflexible rule to eschew lust, anger, avarice, pride, vanity, envy, rudeness, gossiping, lying, idleness, and every other reprehensible conduct, to keep short your nails and hair, to be clean in your person, to dress yourself in reddish-coloured cloth, and to endeavour to lead an upright, pure, and respectful life. You must be always ready to abide by my directions with regard to residing, going about, lying down, sitting down, eating, and studying, and you must always be intent on furthering my

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[41] The mystic syllable is *ōṁ* and the three great mystic words are *bhūr*, *bhuvaḥ*, *svar*. The formula runs as follows: *Ōṁ bhūḥ svāhā*, *Ōṁ bhuvaḥ svāhā*, *Ōṁ svaḥ svāhā*, *Ōṁ bhūr bhuvaḥ svaḥ svāhā*. So NI.

[42] That is, to Brāhmans, Kṣatriyas, Vaiçyas, and to Kṣatriyas Vaiçyas, respectively.

[43] Paragraph 3 is clearly a later interpolation, as it interrupts the account of the initiatory ceremonies. According to NI. it is rejected by the *nibandhas* or 'commentaries.' BHĀ., however, admits it, and argues strongly in favour of the Çūdras. The reason of the interpolation in this particular place clearly is to indicate that the preceding portion of the initiatory rites is omitted in the case of a Çūdra, while the subsequent portion (in § 4) is permitted.—According to NI. there are two readings: either °*saṁpannam=anupanītaṁ*, i.e., 'he may be admitted without any initiating rites'; or °*saṁpannaṁ mantra-varjam=upanītam*, i.e., 'he may be initiated, but without the mantra.' It is not clear which of the two was adopted by BHĀ. They are, however, practically equivalent.

[44] In the form of *pradakṣiṇa*, i.e., from left to right, so that the right side is kept towards the fire. So NI.

pleasure and welfare. If you shall be wanting in all this, you will be a sinner, and your learning will be useless to you and fail to bring you fame. [4] On the other hand, if, while you are regular in the discharge of your duties, I should behave improperly towards you, I shall be committing sin, and my learning will be useless to me."

(5) To treat Brāhmans, spiritual guides, paupers, friends, ascetics, neighbours, devotees, orphans and widows, and people who come from a distance, (gratuitously) with one's own medicines, as if they were one's own relations, is right. But hunters, fowlers, outcasts, and sinners should not be treated. By pursuing such a policy, one makes himself known as learned, and attains friends, fame, merit, wealth, and pleasure. [5]

(6) Here come in (the following verses) :—

On the eighth day of the dark half of the month, as well as on its two last days (*i.e.*, the fourteenth and fifteenth) ; on the same days also of the light half of the month, as well as on the two twilights (*i.e.*, dawn and dusk) of the day; when there is thunder and lightning at unusual times [45]; when one's people or country or king are in distress; [6] during the whole day on which one has been to a cemetery [46]; during the time of a battle, or a festival,[47] or the appearance of a portent,[43] — (on any of these occasions) the student should never read; nor should he do so at any other time when Brāhmans do not study; nor must he ever read when he is impure. [7]

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[45] That is, when rain falls in any of the four months comprising the cold and dewy seasons (*hēmanta* and *çiçira*), *i.e.*, from the middle of November to the middle of March; or when thunderstorms occur in the morning or evening. (Commentaries.)

[46] *Adyatana* is the period of a current day, reckoned either from dawn to dark or from midnight to midnight. This appears to me to be the only rational explanation of the compound word. Both BHĀ. and NI. explain it thus: "on a cemetery or on a slaughter-ground of pack-animals" taking *yāna* to mean *hasty-ādi* or 'elephants, etc,' and *adyatana* to mean *badha-sthāna* or 'place of slaughtering.' I do not understand how the latter meaning for *adyatana* is arrived at.

[47] Such as the festival of Çukra (or Venus) on the full-moon of the month Bhādrapada (August-September); the Kaumudi (or full-moon) festival in the month Āçvina; the festival of

THE THIRD CHAPTER.

On the Contents of this Work. [1]

(1) It has been already stated (see § 15, p. 12) that the one hundred and twenty chapters (of this work) (will be distributed) in five sections. Of these the (first) section on General Principles will contain forty-six chapters: the (second) on Pathology, sixteen: the (third) on Anatomy, ten: the (fourth) on Therapeutics, forty: the (fifth) on Toxicology, eight. Then will follow the supplementary part with sixty-six chapters. [2]

(2) The following are the forty-six chapters of the *Sūtrasthāna* or 'Section on General Principles,' which is called so, because in it the whole of the subjects (of medical science) are presented in clear detail, proper arrangement, and orderly development. [11]

i The origin of the medical science.
ii The initiation of pupils.
iii The exposition of the (contents of the several) chapters.
iv The (importance of) understanding the (medical) terms.
v Preliminary arrangements in surgical practice.
vi Regimen (to be observed) in the various seasons.
vii Description of blunt instruments. [3]
viii Mode of applying cutting instruments.
ix (Practical training in) the application of surgery.

Kuvēra (or the god of wealth) at the summer solstice; the festival of Madana (or the god of love) on the thirteenth day of the light half of the month Caitra (March-April), and others. So Ni.

[43] *I.e.*, any extraordinary natural phenomenon indicative of evil, such as an earthquake or hurricane, a mirage or rainbow, or any wonderful change in a planet or star. (So Ni.)

x (Rules with regard to visiting) the sick-room.
xi Preparation and use of caustics.
xii Lecture on actual cautery.
xiii Lecture on leeches.
xiv Discourse on the blood. [4]
xv Instruction with regard to the humours, constituent elements, excretions, etc., (of the body).
xvi Piercing the (lobules of the) ear.
xvii Diagnosis of immature and mature (inflammations).
xviii (Application of) liniments.
xix (General rules of) treating inflamed parts. [5]
xx Things salutary and insalutary.
xxi Enquiry into (the origin of) inflammation.
xxii Discharges from inflamed parts.
xxiii Characteristics of curable and incurable (inflammations).
xxiv Classification of diseases. [6]
xxv Definition of the various kinds of surgical operations.
xxvi Diagnosis of the presence of a dead (*i.e.*, foreign) substance (in the body).
xxvii Extraction of foreign substances.
xxviii Prognosis of inflammations.
xxix Prognostication from the messenger, dreams, etc. [7]
xxx Morbid changes (as promonitory signs of death) in the five senses.
xxxi The same in the general appearance.
xxxii The same in the constitution (of the body).
xxxiii Avoidance (of treating incurable diseases).
xxxiv Treatment of a king engaged in warfare.
xxxv Treatment of the feeble.
xxxvi Miscellaneous formulae (for external applications to inflammations). [8]
xxxvii Different varieties of soil (with reference to the collection of drugs).

xxxviii Classification of drugs.
xxxix Drugs useful for depuration and rectification (of the humours).
xl Exposition of the terms *dravya* or 'material object' and the rest.[49]
xli Predominant characters of drugs. [9]
xlii Information on the (six) *rasa* or 'tastes.'
xliii Preparation of emetics.
xliv Preparation of cathartics.
xlv Various kinds of liquid substances.
xlvi On food and drink. [10]

(3) The following are the sixteen chapters of the *Nidāna-sthāna* or 'Section on Pathology,' which is so called on account of its describing the causes and symptoms (of diseases). [13]

i Diseases of the nervous system.
ii Hemorrhoids.
iii Calculus in the bladder.
iv Fistula-in-ano.
v Skin-diseases.
vi Morbid secretion of urine.
vii Abdominal tumours.
viii Complex labour.
ix Deep-seated abscesses.
x Malignant growths. [12]
xi Glandular enlargements.
xii Scrotal enlargements.
xiii Fractures[50].
xiv Sores on the penis caused by the *çūka* or 'hairy caterpillar.'
xv Minor diseases.
xvi Diseases of the mouth.

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[49] See footnote 30 on p. 12. "The rest" refers to the tastes, elementary properties, sensific powers, and digestibility, see chap. 4, § 2.

[50] Here the order of the chapters in the book itself differs. The fractures form the 15th chapter, while the penis-sores and the minor diseases form the 13th and 14th chapters respectively.

(4) The following are the ten chapters of the *Çarīra-sthāna* or 'Section on Anatomy,' which was propounded by the Maharṣi (*i.e.*, Dhanvantari), in order to give to physicians and Yōgīs or 'wizards' a knowledge of the (constitution of the human) body. [16]

i Theory of the origin of living beings.
ii Rectification of the semen and menses.
iii Impregnation of the womb.
iv Description of the fœtus.
v Description of the (human) body. [14]
vi Exposition of the vital parts (of the body).
vii Description of the vascular system.
viii Venesection.
ix Description of the ducts and nerves.
x Description of pregnancy. [15]

(5) The following are the forty chapters of the *Cikitsā-sthāna* or 'Section on Therapeutics,' which is so called, because it treats of the amending or rectifying or curing or alleviating, as it may be variously termed, (of diseases). [25]

i Treatment of the two kinds of inflamed sores.
ii Treatment of recent inflamed sores.
iii Treatment of fractures.
iv Treatment of nervous diseases.
v Treatment of major diseases of the nervous system.
vi Treatment of hemorrhoids.
vii Treatment of calculus.
viii Treatment of fistula-in-ano. [17]
ix Treatment of skin-diseases.
x Treatment of major skin-diseases.
xi Treatment of morbid secretion of urine.
xii Treatment of eruptions on the skin (in the foregoing disease).
xiii Treatment of diabetes.
xiv Treatment of abdominal enlargements. [18]
xv Treatment of complex labour.
xvi Treatment of deep-seated abscesses.

xvii Treatment of malignant ulcerations.
xviii Treatment of glandular enlargements.
xix Treatment of scrotal enlargements and diseases of the penis.
xx Treatment of minor diseases. [19]
xxi Treatment of sores on the penis produced by the *çūka* or ‘hairy caterpillar.’
xxii Treatment of diseases of the mouth.
xxiii Prevention of inflammatory swellings.
xxiv Prevention of diseases generally.
xxv Miscellaneous formulae. [20]
xxvi Aphrodisiacs in cases of debility.
xxvii Tonic treatment in every kind of ailment.
xxviii Means of strengthening the memory and prolonging life.
xxix (The *Sōma* tonics for) the prevention of (all) natural diseases. [21]
xxx The tonic known by the name of ‘pain-killer.’
xxxi Use of medicated oils.
xxxii Modes of sweating.
xxxiii Emetics and cathartics. [22]
xxxiv Treatment of disorders brought on by the misuse of the two preceding remedies.
xxxv Classification of syringes, made of a nozzle and bladder, for clysters.
xxxvi Treatment of disorders caused by (the misuse of) such a syringe.
xxxvii The application of oily enemas by the urethra. [23]
xxxviii Enemas made with other liquids.
xxxix Treatment of a patient weakened (by the use of the above-mentioned remedies).
xl Various kinds of inhalations. [24]

(6) The following are the eight chapters of the *Kalpa-sthāna* or ‘Section on Toxicology,’ which is so called because (of its treating) of the preparation and use of remedies against poisons. [27]

i The protection of food.
ii Account of vegetable and mineral poisons.
iii Animal poisons.
iv Information on snake-bites.
v Treatment of the latter. [26]
vi Some *dundubhi* or 'far-famed' antidotes [51].
vii Antidotes against rat-bites.
viii Antidotes against insect-bites.

(7) Thus far altogether one hundred and twenty chapters have been described. Hence forward the *Uttara-tantra* or the 'Supplementary Treatise' will be spoken of, with its several (four) parts as hereafter named.'[52] [28] Its first chapter is concerned with the *upadrava* or 'troublesome diseases' (of the eye); hence this (supplementary) treatise is also called the *Aupadravika* or 'Treatise on Troublesome Diseases.' [29] Next follow in order the (various) chapters which describe the diseases (of the eye).

i On troublesome eye-diseases generally.
ii On diseases in the joinings of the eye.
iii On diseases in the eyelids.
iv On diseases in the sclerotica.
v On diseases in the cornea.
vi On diseases in the whole eyeball.
vii On diseases in the lens. [30]
viii Classification of the treatments (of eye-diseases).
ix Curing of ophthalmia caused by (deranged) air.
x Curing of ophthalmia caused by (deranged) bile.
xi Curing of ophthalmia caused by (deranged) phlegm.
xii Curing of ophthalmia caused by (deranged) blood. [31]
xiii On scarification in eye-diseases.
xiv On incision in eye-diseases.
xv On excision in eye-diseases.

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[51] The order of these chapters in the book itself differs. There the *dundubhi* form the seventh, and the rat-bites the sixth chapter.

[52] For these four parts, see below § 12.

xvi On diseases of the eyelashes.
xvii On diseases of the lens.
xviii Description of external applications (to the eyes).
xix (Treatment of) injuries (to the eyes) caused by violent contact.
xx Diseases of the ears.
xxi Their treatment. [32]
xxii Description of the diseases of the nose.
xxiii Cure of these diseases.
xxiv Cure of coryza.
xxv Description of the diseases of the head.
xxvi Treatment of these diseases.

The preceding (twenty-six chapters) constitute the *Çālākya-tantra* or 'Treatise on Minor Surgery.' [33]

(8) xxvii Description of the nine *graha* (or demoniacal possessions).
xxviii Treatment of the *Skanda*.
xxix Treatment of the *Āpasmāra*.
xxx Treatment of the *Çakunī*.
xxxi Treatment of the *Rēvatī*. [34]
xxxii Treatment of the *Pūtanā*.
xxxiii Treatment of the *Andha-pūtanā*.
xxxiv Treatment of the *Maṇḍikā* [53].
xxxv Treatment of the *Çīta-pūtanā*.
xxxvi Treatment of the *Naigamēṣa*.
xxxvii Origin of these seizures.
xxxviii (Cure of the) diseases of the womb.

The preceding (twelve chapters) constitute the *Kaumāra-tantra* or 'Treatise on the Management of Children,' (and refer to the subjects) named in the *Çarīra-sthāna* or 'Section on Anatomy.' [35]

(9) xxxix Cure of fever.
xl Cure of diarrhœa.
xli Cure of consumption.

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[53] In the book itself the chapter on *Maṇḍikā* is placed after that on *Çīta-pūtanā*.

xlii Cure of abdominal tumours.
xliii Cure of heart-diseases.
xliv Cure of morbid palor.
xlv Cure of hæmorrhage.
xlvi Cure of fainting.
xlvii Cure of alcoholism. [36]
xlviii Cure of morbid thirst.
xlix Cure of vomiting.
l Cure of hiccough.
li Cure of asthma.
lii Cure of cough.
liii Cure of aphonia.
liv Cure of worms.
lv Cure of retention of discharges. [37]
lvi Cure of cholera.
lvii Cure of anorexia.
lviii Cure of dysuria.
lxix Cure of strangury.

The preceding (twenty-one chapters) constitute the remainder of the *Kāya-cikitsā* or 'Treatment of the Body.'[54] [38]

(10) lx Cure of diseases caused by superhuman agencies.
lxi Cure of epilepsy.
lxii Cure of insanity.

The preceding (three chapters) constitute the *Bhūta-vidyā* or 'Science of Demoniacism.' [39]

(11) lxiii Enumeration of the (combinations of) tastes.
lxiv Hygienic rules.
lxv Syntactical rules.
lxvi Enumeration of the (combinations of) humours.

The preceding (four chapters) must be understood to serve as embellishments of this treatise.

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[54] The commentary explains that the term 'remainder' indicates that other portions of the 'treatment of the body' have already been given in the preceding part on *çalya* or 'major surgery.' The reference here is clearly to the *cikitsā-sthāna* or 'section on therapeutics.'

(12) On account of its excellence the Maharṣis have called this treatise the *Uttara* or 'superior one.' Its excellence lies in the fact of its comprising so many subjects. It is also called *Uttara* or 'supplemental' by reason of its position at the end. [41] The subjects comprised in it, are the following four :

i Minor surgery,
ii Management of infants,
iii Medical treatment of the body,
iv Science of demoniacism. [42]

(13) The subjects of aphrodisiacs and alterative tonics are included in the *Cikitsā-sthāna* or 'Section on Therapeutics.'[55] [42] The doctrine of poisons is given in the *Kalpa-sthāna* or 'Section on Toxicology.' Information about (the treatment of) foreign substances in the body will be found in every part (of this work). [43]

(14) This work, then, with its above-named eight divisions, first made known by the Primordial Dēva (*i.e.*, Brahmā), whoever will carefully study and use in his practice, he will become a saviour of life in this world. [44] Both are equally necessary : the study of this science as well as its practical application after study. A physician, who is proficient in both, will be honoured by his king. [45]

(15) Here come in (the following verses) :—

> One who knows medical science only theoretically, but possesses no practical experience, looses his head in the presence of a patient, just as a coward does in the presence of a challenge to fight. [46] On the other hand, he who is well-versed in praxis, but from self-confidence is neglectful of (keeping up) the study of his science,[56] does not obtain the esteem of good men, and deserves to be condemned to death by the king. [47] Both these kinds of

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[55] Aphrodisiacs are treated of in the 26th, and alterative tonics in the 27th–30th chapters of that section.

[56] *I.e.*, One who, trusting entirely to his early acquisition of the science as a pupil, neglects to keep up his reading as a practitioner. (Commentaries.)

unqualified physicians are unfit to practice their calling; for possessing only one-half of the knowledge of it, they are like birds that possess only one wing. [48] Medicines, though they are like nectar, become like poison, lightning, or other instruments of destruction, if they are administered by an ignorant practitioner.[57] Therefore such should be avoided. [49] A physician who is unskilled in operations, such as excision and the like, or application of medicated oils and the like, merely kills people from avarice. It is the king's fault, if such bad physicians exist. [50] On the other hand, he who is proficient in both (theory and practice) is fit to intelligently exercise his calling, just as a carriage with two wheels is fit to accomplish its work in the battle. [51]

(16) Now, my son, listen attentively to my instruction, how this (medical science) is to be studied. After having performed the prescribed purifications, the pupil must present himself, dressed in his upper garment and with an undistracted mind, at the hour of instruction; and the tutor should then teach him, according to his capacity, either a word, or a quarter-verse, or a full-verse[58]; and the pupil must repeat these after him, again and again, in their proper order. In this manner the tutor should instruct each pupil separately; and he should himself repeat the lesson after his pupil. The latter should read not too quickly, nor too slowly, nor with fear, nor with a nasal twang, but with distinct utterance of every syllable, and without distortion of any letter, not gesticulating with eye, eyebrows, lips and hands, but (reading) with a well-modulated voice, neither too high, nor too low. Nor should any one pass between tutor and pupil, while they are engaged in study. [52]

(17) Here come in (the following verses) :—

Purified, devoted to his tutor, alert, and eschewing laziness and sleep, the pupil should study: in this wise he will attain complete mastery over medical science. [53] One who has completed his studies should then strive to attain clearness of speech, comprehension of the requirements of any case, confidence in himself, skill and practice in medical work, and success (in his profession). [54]

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[57] The allusion is to the story of Garuḍa who stole the nectar and to whom it turned into poison. So NI.

[58] The text has *çlōka*, i.e., a verse of 32 syllables; and BHĀ. explains that if a medical work is written in prose, the direction refers to clauses of 8, 16, or 32 syllables respectively.

THE FOURTH CHAPTER.

The Importance of Understanding the Terminology of Medical Science. [1]

(1) Learning by rote without understanding the meaning of what is learned is profitless labour like that of the ass carrying a load of sandalwood. [2] Here comes in (the following verse) :—

> As the ass that carries a load of sandalwood is conscious of the (weight of the) load, but not of the (fragrance of the) sandalwood, so those who learn numerous medical text-books, but remain fools with reference to their meaning are, ass-like, mere carriers of a load. [3]

(2) Hence every word, quarter-verse, full-verse, and half-verse,[58] singly, of these one hundred and twenty chapters[59] must be again and again explained (to the pupil) and rehearsed (by the latter.) The reason is that it is a subtle matter to classify and discriminate the material objects, their tastes, elementary properties, sensific powers, and digestibility[32]; the humours and constituent elements of the body, its secretions, viscera, vital parts, blood-vessels, ligaments and nerves,[60] joints, bones, and

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[59] This shows very clearly that the Uttara Tantra is a later addition to the original work of Suçruta which only contained 120 chapters, up to the end of the Kalpa Sthāna.

[60] The term *snāyu* includes both ligaments and nerves. The nerves are also included in the term *dhamani*, which comprises both ducts (or vasa) and nerves. The latter were not recognised as a distinct part of the body.

all the factors of pregnancy[61]; also to extract foreign bodies, diagnose inflamed sores, and treat fractures; also to prognose the curability or incurability of diseases. These and a thousand other such important matters which require to be thought over are apt to puzzle even men of clear and great intellect, how much more those of small intellect? Hence it is very necessary that every word, quarter-verse, full-verse and half-verse should be over and over again explained (to the pupil) and rehearsed (by the latter). [4]

(3) As subjects will be referred to in this (work) which belong to other sciences, and as it will be necessary (for the pupil) to know their meaning, he must obtain information on them from men learned in those sciences. The reason is that it is impossible in (treating of) any one science to avoid referring to other sciences. [5]

(4) Here come in (the following verses) :—

Any one who knows no more than a single science, can have no thorough knowledge of that science. Hence a physician will not be proficient in his own science, unless he is versed also in many other sciences. [6] A physician who is not content with merely learning his science from the lips of his tutor, but familiarises himself with it by repeated study, he is a true physician; all others are swindlers. [7] The surgical treatises of Aupadhēnava, Aurabhra, Suçruta, and Pauṣkalāvati form the basis of all other treatises on the subject.[62] Hence instruction should be given in those works. [8]

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[61] Such as semen, menstrual blood, etc. (Commentaries.)

[62] According to Ni. the other treatises are those of Karavīrya, Gōpura-rakṣita, etc. But the commentary adds that, according to other commentators, *mūlāni* means only 'most important,' *i.e.*, 'among the various surgical works those of Aupadhēnava, etc., are the most important.'

THE FIFTH CHAPTER.

PRELIMINARY ARRANGEMENTS FOR SURGICAL OPERATIONS. [1]

(1) There are three stages in the treatment (of diseases): the preliminary, the principal, and the after-treatment. These we shall describe separately in the case of each individual disease. In this work, surgery being the most important subject, I shall begin with describing the preliminaries for surgical operations and all the requisites for them. [2]

(2) Of surgical operations there are eight kinds, namely, excision, incision, scarification, puncturing, probing, extraction, letting out pus, and stitching.

(3) Now when a physician desires to perform any operation, he should first of all arrange in a handy place the following articles: blunt and cutting instruments, caustics and cautery, probes, a horn, leeches, a hollow bottle-gourd,[63] a bougie,[64] cotton, pieces of cloth, thread, leaves, bandages, honey, clarified butter, suet, milk, oil, refreshments and decoctions,[65] liniments, pastes, a fan, cold and hot water, pans, and other useful things. (He should) also (provide himself with) trusty, steady, and strong assistants. [3] Then, on an auspicious *tithi* or 'lunar day,' *karaṇa* or 'lunar half-day,' *muhūrtta* or '30th part of a lunar day,' and *nakṣatra* or 'lunar asterism,' after having worshipped Agni (*i.e.*,

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[63] This is the *Alābū* (*Lagenaria vulgaris*), the shell of which is hard and ligneous, and when dried is much used in the East as a vessel for holding fluids of all kinds; also for making guitars and banjos. See *Pharmacographia Indica*, Vol. II, p. 67.

[64] The text has *jāmbav-auṣṭha*, lit. 'having jambu-like lips.' NI. explains that the bougie is made of a black stone the extremity of which is shaped like the fruit of the Jambu tree (the Jamun or *Eugenia Jambolana*).

[65] The text has *tarpaṇa* and *kaṣāya*. According to the commentaries, *tarpaṇa* means *çaktu* (flour of any parched grain) or milk or other substance mixed with water and given to the patient if he becomes thirsty. *Kaṣāya* is explained as the decoction (to one-quarter or one-eighth) of medicinal plants.

the god of fire), Brāhmans, and (other) physicians with curds, whole (rice-)grains, food, drink, and jewels, offered oblations, and said words of lucky import and welcome, the patient, who must only have taken a light meal, should be set face to face with the physician and firmly secured. The latter, (taking care to) avoid any vital part, bloodvessel, nerve and ligament,[60] joint, bone, or duct,[60] should introduce the instrument in the direction of the hairs of the skin, till pus appears, and then at once and quickly withdraw it.

(4) In large abscesses the instrument may be inserted to the depth of two fingers' breadth. [4] The marks indicating an abscess to be ready for operation are, that it has a large base, rounded form, uniform maturation, and a favourable position. [5] Here come in (the following two verses) :—

> An abscess with a large base, a rounded form, well-matured, and unconnected with any important organ,[66] and (in short) one which is operated on at the proper time, will readily heal by the operation. [6] It will heal, if it is operated on by a physician, who is fearless and quick, whose instrument is sharp, who does not perspire or tremble, and who does not err (in his diagnosis.)[67] [7]

If on the first incision[68] the abscess is not emptied, it should be carefully explored, and other incisions should be made. [8] Here comes in (the following verse):—

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[66] The term *su-vibhakta* is rather obscure, even in the commentaries. It seems to be here synonymous with *sama* in § 5 of the Sanskrit text, while in § 5 it seems to be synonymous with *nirāçraya* in § 6.

[67] Or it may mean 'who does not faint (at the sight of blood).' So Ni.

[68] The Sanskrit text has *vraṇa*, lit. 'wound,' hence 'incision.' This word is used, in medical works, with two different meanings. It may mean either simply 'a wound,' or it may be equivalent with *çōtha* or 'inflammation,' 'an inflamed sore or swelling.' Thus Bhā. says here : *çōthō 'pi vraṇa-hētutayā vraṇa ucyatē*, i.e., 'an inflamed swelling' may also be called a *vraṇa*, when it is caused by a wound or sore.

> In whatever direction (a physician) perceives a sinus, and wherever there is (still) a collection (of pus), there he should 'make an incision, lest any pus should remain behind. [9]

In the following places: eyebrows, cheeks, temple, forehead, eyelids, lips, gums, armpits, abdomen, and groin, a transverse incision is indicated. [10] A circular incision should be made on the palms and soles, and a semicircular, on the anus and penis. [11] Otherwise a bloodvessel or ligament or nerve may be divided, and thus excess of pain, and delay in the coalescing and granulating of the wound will be caused. In the case of complex labour, enlargements of the abdomen, hœmorrhoids, calculus, fistula-in-ano, and mouth-diseases,[69] the operation should be performed (on the patient) in empty stomach. [12]

(5) After the operation, the physician should revive the patient with cold water, and then press the wound all round with his fingers (to empty it thoroughly), smooth it down, wash it with an astringent decoction, wipe it with a piece of cloth, and insert into it a tent thickly smeared with a paste of sesamum-seed, honey and clarified butter, and impregnated with (depuratory) drugs. Next he should cover it with a paste (of suitable drugs), place over this a thick pad,[70] neither too wet nor too dry, tie (the whole) with a bandage, and fumigate it with pastils made of pain-killing drugs.[71] He should also, for the patient's protection from dangers, pronounce *mantras* or 'charms' against evil spirits. [13]

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[69] In the case of mouth-diseases the reason is that owing to the pressure of the operator's fingers, etc., or from disgust, the food is thrown up again, and the operation is interfered with. So Ni. Bhā. only gives the latter alternative.

[70] The pad may be made either of the crushed bark and leaves of the *Palāça* (*Butea frondosa*), *Uḍumbara* (*Ficus glomerata*) and other trees; or of two or four folds of a soft piece of cloth; or of powder of parched wheat mixed with clarified butter. So Ni., but Bhā. only gives the first method.

[71] The object of fumigation is to ward off flies, etc. So Bhā.

(14) Also the place should be fumigated[72] with pastils made of the powders of Indian *bdellium*, aloe-wood, resin of the Sal tree, (root of) Vachā (*Acorus Calamus*), and white mustard, mixed with salt and Nīm-leaves, and done up with clarified butter. With the rest of the clarified butter (thus done up) the patient's vital parts (*i.e.*, the heart, etc.) should be anointed. Then taking water from the drinking-water vessel, and sprinkling it (in the room), the physician should pronounce the subjoined protective incantation[73]. [14]

(15) For the sake of warding off the malice of the Kṛtyās[74] and Rakṣasas, I am performing this protective rite. May Brahmā approve of it! [15] Nāgas, Piçāchas, Gandharvas, ancestral Ghosts, Yakṣas, Rākṣasas:[75] whoever of these may trouble you, may Brahmā and the other gods always kill them! [16] May the spirits that walk at night in the earth and sky, as well as those that dwell in the four quarters and in the habitations of men, and whom I now salute, protect you. [17] May the Munis (or sages) keep you and Brahmā and the heavenly beings, and the Rājarṣis (or royal sages): also the mountains, and all rivers, and all seas! [18] May Agni (or the god of fire) protect your tongue, and Vāyu (or the god of wind) your respirations.[76] May Sōma (or the god of the

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[72] For the purpose of deodorising the sick-room, as well as driving away blue-bottles and other flies which otherwise would breed maggots in the wound. So Nɪ.

[73] The following incantation is in verse.

[74] *Kṛtyā* is a female Rākṣasa or fiend, raised by the evil machinations of an offended sorcerer. So Nɪ.

[75] See ante, note 9.

[76] The Hindūs believe in five *prāṇas* or 'vital airs': 1, *prāṇa* whose functions are the respirations, also diglutination, and propulsion of the blood; 2, *vyāna* whose functions are all muscular and vascular movements; 3, *apāna* whose functions are every kind of secretion; 4, *udāna* whose function is the production of every kind of voice; 5, *samāna* whose function is the whole of the assimilative process.

moon) protect your movements, and the clouds your secretary functions. [19] May the lightnings keep your vocal functions, and the thunders your assimilative functions, and Indra, the lord of power, your strength, and Manu [77] your two cervical tendons as well as your intelligence. [20] May the Gandharvas prosper your desires, and Indra keep your good qualities, and king Varuṇa your knowledge, and the ocean your navel. [21] May the sun keep your eyes, the quarters your ears, and the moon your thoughts. May the lunar asterisms ever keep your figure, and the nights your appearance. [22] May the waters promote the flow of your semen, and the medicinal herbs the growth of your hair. May the sky keep your canals, and the earth your body. [23] May Vaiçnāvara (or the god of wealth) keep your head, Viṣṇu your energy, the best of men (*i.e.*, Nārāyaṇa) your manly vigour, Brahmā your vitality, and the polar star your eyebrows. [24] May (all) these divinities, each with respect to his own part of your body, for ever keep you, and may you attain long life. [25] May the blessed Brahmā grant you welfare, and the Dēvas, as well as the sun and the moon, and both Nārada and Parvata.[78] [26] May Agni grant you welfare, and Vāyu, and all the Dēvas that attend on Indra. May the protection granted by Pitāmaha (*i.e.*, Brahmā) procure you welfare and long life. [27] May all calamities of the season be mitigated for you, and may you ever be free from distress. Svāhā (or Amen). [28] By this vedic incantation, for the removal of all diseases caused by Kṛtyā, your safety has now been secured by me. May you now attain long life! [29]

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[77] "Manu" here refers to Prajāpati (so NI.) or the primordial, 'man,' a son of Brahmā, the demiurge of the world, and father of the human race.

[78] Nārada and Parvata are a pair of ancient, semi-mythical (*dēvarṣi*) sages, descendants of Kaṇva, and authors of certain hymns in the Ṛgvēda. They are said to act as 'messengers of the gods.'

(16) Then he should remove the patient, thus protected, into the house, and prescribe his regimen. Then on the third day, he should open the bandage and, after cleaning the sore, re-apply it. He should be careful not to change the dressing on the second day. [30] If the dressing is changed on the second day, the sore will granulate and consanesce only with much delay, and will become very painful. Thenceforward,[79] he should give directions regarding astringents, liniments, bandages, diet and conduct, in accordance with the state of the humours, the (requirements of the) seasons and the strength (of the patient). Nor should he be in any hurry about causing an abscess to consanesce, if it still contain any pus; for even a slight irregularity in the treatment will cause a gathering within, and the abscess will form anew. [31] Here come in (the following verses):—

> Hence (the physician) should allow an abscess to consanesce only when it is entirely depurated within as well as without. Even during the process of consanescence (the patient) should abstain from indigestible food, violent exercise, and sexual intercourse, and (avoid excitements from) pleasure, anger, or fear, until the wound has firmly healed. [32] In the seasons of Hēmanta (December–February), Vasanta (February–April) and Prāvṛṣ (June–August) the physician should, as a rule, change the bandage every third day, but every second day in Çarad (October–December), Grīṣma (April–June), and Varṣā (August–October).[80] [33] In diseases of very rapid pro-

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[79] *I.e.*, from the fourth day. So the commentaries.

[80] The now current recension of the first half of this verse runs as follows: *hēmantē çiçirē c=aiva vasantē c=āpi mōkṣayēt*, i.e., 'in the seasons of Hēmanta (November–January), Çiçira (January–March) and Vasanta (March–May) he should, as a rule, change the bandage (every third day).' There is, however, another recension, which runs as follows: *hēmantē ca vasantē ca prāvṛtkālē ca mōkṣayēt*, i.e., 'in the seasons of Hēmanta (December–February), Vasanta (February–April) and Prāvṛṣ (June–August) he should, as a rule, change the bandage (every third day).' This recension is mentioned by both NI. and BHĀ., but both

gress, the physician need not observe these directions. In such a case, as with a house on fire, he must adopt swift remedial measures. [34] If, from the application of the

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reject it on account, as they say, of the heat which characterises the season of Prāvṛṣ or the early rains. They explain that the reason of the injunction to change the dressing on the third and the second days is that the seasons of Hēmanta, Çiçira and Vasanta are characterised by cold, while those of Çarad, Grīṣma and Varṣā are characterised by heat; now in a cold season there is no fear of any rapid suppuration setting in, while in a hot season there is that fear; hence arises the necessity of changing the bandage more frequently (*i.e.*, every second day) in the latter seasons than (*i.e.*, every third day) in the former. This reasoning I fully admit; nevertheless I am disposed to believe that the rejected recension is the correct one, and accordingly I have ventured to adopt it in my translation. From the next chapter (the sixth) it will be seen that there are two divergent systems of arranging the seasons, which I may call the civil and the medical. The following table will render these two systems clear.

I. The civil arrangement of the seasons.

Season.	Months.	Months.
(1) Çiçira	Māgha-Phālguna	15th January–15th March
(2) Vasanta	Caitra-Vaiçākha	15th March–15th May
(3) Grīṣma	Jyēṣṭha-Āṣāḍha	15th May–15th July
(4) Varṣā	Çrāvaṇa-Bhādrapada	15th July–15th September
(5) Çarad	Āçvina-Kārttika	15th September–15th Nov.
(6) Hēmanta	Mārgaçīrṣa-Pauṣa	15th November–15th Jany.

II. The medical arrangement of the seasons.

(1) Vasanta	Phālguna-Caitra	15th February–15th April
(2) Grīṣma	Vaiçākha-Jyēṣṭha	15th April–15th June
(3) Prāvṛṣ	Āṣāḍha-Çrāvaṇa	15th June–15th August
(4) Varṣā	Bhādrapada-Āçvina	15th August–15th October
(5) Çarad	Kārttika-Mārgaçīrṣa	15th Oct.–15th December
(6) Hēmanta	Pauṣa-Māgha	15th Dec.–15th February

It will be noticed that in these two systems the seasons overlap one another, and that while the civil system omits the season of Prāvṛṣ, the medical omits the season of Çiçira.

instrument, the patient suffers severe pain, relief may be given him by the application to the part of tepid clarified butter mixed with liquorice.

It will be also noticed that the recension which the commentaries reject follows the medical system, while the commentaries adopt the recension which follows the civil system. This can hardly be thought consistent. But further: Prāvṛṣ or the early rainy season, which the commentaries reject on account of its heat, is as a matter of fact (and as the experience of any one who has lived in India will bear out) a comparatively cool season; any way, it is cooler than the admittedly hot seasons of Varṣā (or later rains), Çarad and Grīṣma, and also cooler than the Vasanta of the civil system, which the commentaries adopt; for that civil Vasanta runs from the 15th March to the 15th May, which includes the nearly hottest time in India. The recension which I have adopted is surely, in every way, the most consistent; it gives the Hēmanta and Vasanta of the medical system which include the coolest time of the year (15th Dec. to 15th April), it also gives the Prāvṛṣ which is the comparatively coolest time (15th June to 15th August) within the Indian hot period of the year (April to November). I suspect the only reason which originated the other recension, adopted by the commentaries, is an apparent incongruity; *viz.*, the interruption in the sequence of the seasons in the rejected recension, for here Prāvṛṣ comes between Grīṣma and Varṣā. For this reason, apparently, the commonly received recension follows the civil system, and thus, by rejecting Prāvṛṣ and adopting Çiçira, establishes an uninterrupted sequence of seasons in its rule about changing of bandages. But thereby, as it appears to me, medical consistency is sacrificed.—The commentaries further explain that the expression 'as a rule' (in Sanskrit *caiva* or *cāpi*) permits a relaxation of the rule in the case of sores characterised by deranged bile (*paittika*). These require dressing every second day, or even every day according to the seasons.

THE SIXTH CHAPTER.

REGIMEN TO BE OBSERVED IN THE DIFFERENT SEASONS. [1]

(1) Time, in truth, is the great Self-existent Being,[81] without beginning, middle and end. From it depend the destruction and production of all material objects[82] and the life and death of men. (Hence comes its name *kāla* 'time'); for *kāla* is either that which never ceases for the smallest *kalā* or 'moment'; or it is that which *saŋkalayati* or 'composes,' or which *kālayati* or 'destroys' living beings.[83] [2]

(2) Time, considered as a year, is divided by the blessed Sun, through his own motion, in (periods called severally) *akṣi-nimēṣa, kāṣṭhā, kalā, muhūrtta, ahō-rātra, pakṣa, māsa, ṛtu, ayana, saṁvatsara,* and *yuga.* [3] Now a *nimēṣa* or 'wink of the eye' is the time required to pronounce a short syllable. Fifteen *nimēṣa* make a *kāṣṭhā.* Thirty *kāṣṭhā* make a *kalā.* Twenty *kalā* plus one-tenth of a *kalā* make a *muhūrtta.*[84] Thirty *muhūrtta* make

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[81] The text has *bhagavān Svayambhūḥ*, which lit. means that time is identical with 'the Blessed Svayambhū' or Brahmā. *Svayambhū* means 'self-existent.'

[82] The text has *rasa* or 'taste;' but both commentaries explain that here, by that term, are signified the *dravya* or 'material objects,' as being the seats of the tastes.

[83] 'Composing' refers to the five elements which make up the body and into which it is separated when it dies (see Chap. I, § 9). *Kālayati* is a denominative verb, formed from *kāla*, which means not only time but also death.

[84] BHĀ. here points out that the equation $20\frac{1}{10}$ *kalā* $=1$ *muhūrtta* agrees with the subsequent statement, in the 14th chapter on blood, that the *rasa* or 'chyle' takes one month (or 30 days) to complete one circulation by staying 3015 *kalās* in each of the 6 elementary parts of the body. Accordingly it takes 5 days or 150 *muhūrttas* for each elementary part; hence 1 *muhūrtta* is equal to ($\frac{3015}{150}$ or) $20\frac{1}{10}$ *kalā*. BHĀ. adds that this equation is founded on Aupadhēnava's treatise, (see chap. I, § 2.) It further says that the statement of Bhōja and Bhālluki that a *muhūrtta* is equal to only 20 *kalā*, must be explained as a clerical error (*lipi-dōṣa*). NI. only says that the equation of $20\frac{1}{10}$ *kalā* $=1$ *muhūrtta* is refuted by the commentaries (*nibandha*).

an *ahō-rātra* or 'the period (of a full day) comprising day and night.' Fifteen *ahō-rātra* make a *pakṣa* or 'half-month'; this is of two kinds: the light and the dark.[85] These two together make up a *māsa* or 'month.' [4] Next the twelve months, beginning with Māgha, make up six seasons, each consisting of two months. These are *Çiçira*, *Vasanta*, *Grīṣma*, *Varṣā*, *Çarad*, *Hēmanta*. Of these Çiçira consists of the months *Tapas* and *Tapasya;* Vasanta, of *Madhu* and *Mādhava;* Grīṣma, of *Çuci* and *Çukra;* Varṣā, of *Nabhas* and *Nabhasya;* Çarad, of *Iṣa* and *Ūrja;* and Hēmanta, of *Sahas* and *Sahasya*.[86] [5] The foregoing division is from the point of view of winter, summer and rains; but from the function of the sun and moon as dividers of time, there result two *Ayana* or 'paths': a southern and a northern. Of these, the southern (path) consists of (the seasons) *Varṣā* or 'the rains,' *Çarad* or 'autumn,' and *Hēmanta* or 'winter.' In these (months) the blessed *Sōma* or 'the moon' is very powerful, and the acid, saline and sweet tastes grow strong, and from month to month all living beings continue increasing in strength. The northern (path) consists of the months *Çiçira* or 'early spring,' *Vasanta* or 'spring,' and *Grīṣma* or 'summer.' In these the blessed *Arka* or 'the sun' is very powerful, and the bitter, astringent and acrid tastes grow strong, and from month to month all living beings continue decreasing in strength. [6] Here comes in (the following verse):—

> The moon (lit. 'the cold-rayed one') moistens the earth; and the sun (lit. 'the brilliant one') dries it. The

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[85] Both commentaries observe that the position of the light before the dark half indicates that the author of the treatise followed the *amāvasya* mode of reckoning. But Nı. adds that, according to another reading, the dark precedes the light half.

[86] The more usual names of these months are: *Māgha* and *Phālguna; Caitra* and *Vaiçākha; Jyēṣṭha* and *Āṣāḍha; Çrāvaṇa* and *Bhādrapada; Āçvina* and *Kārttika; Mārgaçīrṣa* and *Pauṣa*. See below, § 9. For the identifications of the seasons, see *ante* Chap. V, § 16, note 80. *Māgha* runs from the middle of January to the middle of February. Similarly *Phālguna* is February-March, and so forth, *Sahasya* being December-January.

air, in conjunction with these two, maintains all living beings. [7]

Again the two *Ayana* or 'paths' together make one year, and five of these (years) together make one *Yuga* or 'lustrum.' This whole series of divisions of time, from the *nimēṣa* or 'a wink' to the *yuga* or 'lustrum,' as it is always going round like a revolving wheel, is called by some the *Kāla-cakra* or 'the wheel of time.' [8]

(3) Now with reference to the growth, derangement and rectification of the humours, the seasons may be also arranged thus :[87] *Varṣā* or 'the rains,' *Çarad* or 'autumn,' *Hēmanta* or 'winter,' *Vasanta* or 'spring,' *Grīṣma* or 'summer,' and *Prāvṛṣ* or 'the early rains.' These seasons, beginning with the month Bhādrapada are also constituted of two months each, as follows: Varṣā comprises the months *Bhādrapada* and *Açvayuja ;* Çarad, the months *Kārttika* and *Mārgaçīrṣa ;* Hēmanta, the months *Pauṣā* and *Māgha ;* Vasanta, the months *Phālguna* and *Caitra ;* Grīṣma, the months *Vaiçākha* and *Jyaiṣṭha ;* Prāvṛṣ, the months *Āṣāḍha* and *Çrāvaṇa.* [9]

(4) Now in the rainy season the annuals[88] are young and weak in their sensific powers, and the waters are muddy and mostly full of dirty matter[89] fallen (into them) from the earth. From the use of these acidity of the stomach[90] is produced in

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[87] This is, of course, the medical division of the year, contrasted with the civil division previously explained. So, on the whole, both commentaries, though they give a more fanciful reason for pre-positing the civil year, because that year refers to the growth and strength of the *rasa* or 'tastes' which are the causes of the humours. BHĀ. adds (only to refute it) that according to Kāçyapa the two systems of divisions are held to the north and south of the Ganges respectively, because there is more rain (hence two rainy seasons) in the South, while there is more cold (hence two springs) in the North. NI. only mentions this theory, without naming its author, and says that Gayādāsa refutes it.

[88] Such as wheat, rice, chickpeas, etc. So NI. The text has *ōṣadhi ;* see chapter I, § 12.

[89] Such as decayed leaves, dead and putrifying animals. So NI.

[90] Here as well as below, the expression used in the text is

men, whose digestion has become impaired through their air being deranged by cold, owing to their bodies being kept in a moist condition by living on ground saturated with the rains from the cloud-charged skies: and in consequence of the acidity of the stomach, they bring on an accumulation of bile. Then, in the autumn, when the sky clears up and the sloughs dry, the accumulated bile, diffused (through the body) by the rays of the sun, generates diseases which owe their origin to (deranged) bile. [10] In the winter, these same annuals, from the fulness of time, attain their full sensific powers, and the waters become clear. Thus they become emolient and heavy, and from their use dyspepsia[90] is produced in men, whose bodies are affected by the frosts and (cold) winds due to the mildness of the sun's rays: and in consequence, through their emollient, cold, heavy and sticky qualities, they bring on an accumulation of phlegm. Then in the spring, when the accumulated phlegm is diffused (through the body) by the rays of the sun, it generates in men, now less affected (by the cold), diseases which arise from (deranged) phlegm. [11] In the summer, the same annuals become dry, sapless, and excessively light, and the waters likewise. From the use of them, through their dry, light, and sapless nature, they bring on an accumulation of air in men, whose bodies are dry from the heat of the sun. Then, in the early rains, when men's bodies are kept moist by (living on) ground saturated with water, the accumulated air, diffused (through their bodies) by the chilly winds, generates diseases due to the (deranged) air. Thus it has now been shown how the accumulation of the humours is the cause of their derangement. [12]

(5) Now the depuration of the humours which have accumulated severally in the rains, winter and summer should, as a rule, only be undertaken after their derangement has come to a head

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the same: *vidāha* or *vidagdha*, which literally means 'burning' or 'burned,' and figuratively, 'digested' as well as 'badly digested,' 'turned sour,' etc. Bhā. explains it as "sluggish digestion due to the production of acidity." Ni. explains it by *amlapāka*, lit. 'sour digestion'; and Dr. A. C. Dutt explaines it by *ām-ājīrṇa* or 'imperfect digestion.'

in the autumn, spring, and early rains respectively.[91] [13] This done, the rectification of diseases may be undertaken in accordance with their respective nature; that of diseases due to bile, in the winter; that of diseases due to phlegm, in the summer; and that of diseases due to air, in the autumn. In the foregoing remarks the way has been fully described in which the humours accumulate, become deranged, and are rectified. [14] With reference to these points, the forenoon may be said to be the analogue of the spring; the noon, of the summer; the afternoon, of the early rains; the dusk, of the rains; the midnight, of the autumn; and the dawn, of the winter. Hence with regard to the accumulation, derangement and rectification of the humours, the full period consisting of a day and night must be understood to be analogous to a year consisting of winter, summer, and the rains. [15]

(6) Further, when the seasons are regular, the annuals as well as the water are also wholesome; and their use gives to people longevity, strength, energy and vitality. On the other hand, irregularity in them is owing to fate. Cold, heat, wind and

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[91] Both commentaries explain that the phrase "as a rule" (Sanskrit *ca*) shows that the direction is a permissive one and does not apply to very acute diseases which require instant remedial measures. They add that the *saṁçōdhana* or 'depuration' should be done, as a rule, after the lapse of the third month of the total period, *i.e.*, in the second month of the respectively suitable season. Thus bile should be depurated in the month Mārgaçīrṣa; phlegm, in Caitra; and air, in Çrāvaṇa. Bhā. quotes from Bhaṭṭāra Hariçcandra the following rule: *varṣ-ādi-sañcitān-dōṣān=tri-mās-āntaritān=harēt*, i.e., 'the humours which have accumulated in the rains and other seasons may be removed after the lapse of three months.' The following table gives a summary:—

Humour.	Accumulation.	Depuration.	Rectification.
Bile.	Rains (4).	Autumn (5), Mārgaçīrṣa.	Winter (6).
Phlegm.	Winter (6).	Spring (1), Caitra.	Summer (2).
Air.	Summer (2).	Early rains (3), Çrāvaṇa.	Rains (4).

The numbers refer to the medical system, see note 80.

rain, when they are irregular,[92] cause the annuals and water to become unwholesome, and their use produces all sorts of diseases, or even deadly epidemics. Hence the use of wholesome annuals and water (is to be recommended). [16] Sometimes even with regular seasons, the people of a country suffer through some sorcery or some curse or the wrath of evil spirits or the wickedness of men. When wind carries into a country the exhalations of the flowers of poisonous animals, its people are attacked with cough, asthma, vomiting, nasal catarrh, headache, or fever, without any particular reference to the condition of their humours (at the time), but simply owing to the (noxious) influence of the planets or lunar asterisms or to an inauspicious sign in one's house, or wife, or bed, or seat, or conveyance, or beast of burden, or jewel, or gem, or any utensil. [17] In such a case the impending evil may be turned into good by leaving the place, or by (performing) propitiatory or expiatory rites, or by (using) amulets, incantations, burnt-offerings, dedications, donations, salutations, devotions, asceticism, observances, kindness, charities, receptions of *mantras* or 'charms' and advice. Any of these means may be resorted to with reference to Dēvas (or 'gods'), or Brāhmans, or Gurus (or 'spiritual guides'). [18]

(7) In the following (verses) we will describe the characters of the seasons when they are regular :—[19]

> In Hēmanta or 'winter' a cold wind blows from the North, the atmosphere is charged with dust and smoke, the sun is obscured by mists, all pieces of water are covered with ice, [20] crows, rhinoceroses, buffaloes, rams and elephants are made bold, and Rōdhra (*Symplocos racemosa*), Prigaŋgu (*Aglaia Roxburghiana*) and Punnāga (*Ochrocarpus longifolius*) bear flowers. [21] In Çiçira or 'early spring,' the cold is intense, and the atmosphere is full of rain and wind; for the rest its character may be said to be the same as that of the winter. [22] On the Malaya mountains, marked by the red-stained soles of the wives of Siddhas and Vidyādharas,[93] and scented

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[92] Either in amount or incidence. So Ni.

[93] Two classes of supernatural beings, possessed of magical powers.

through the womanly embrace of the sandal trees, [23] there blows, in Vasanta or 'spring,' a wind from the South which stimulates love, makes happy the lovers, and breaks down reserve between husband and wife. [24] In Vasanta or 'spring' the sky is clear; the groves are adorned with the flowers of the Kiṁçuka (*Butea frondosa*), Ambhōja (*Nelumbium speciosum*), Vakula (*Mimusops Elengi*), Cūta (*Mangifera indica*), Açoka (*Saraca indica*) and other trees, [25] the delightful music is heard of the Indian cuckoo and of swarms of bees, the wind blows from the South, and the country is charmingly adorned with fresh green. [26] In Grīṣma or 'summer' the sun's rays are hot, the wind blows unpleasantly from the South-west, the earth is scorched, the rivers are low, the sky is, as it were, on fire, [27] the Cakravāka-pairs[94] wander about, and the beasts of the forest are distracted for want of water, the shrubs, grasses and creepers wither, and the trees drop their leaves. [28] In Prāvṛṣ or 'the early rains,' the sky is covered with clouds, brought by the west wind and discharging heavy showers of rain with tremendous thunder and lightning, [29] the earth is covered with beautifully green young grass, and is bright with the cochineal insert, and gay with (the flowers of) the Kadamba (*Anthocephalus Cadamba*), Nīpa (a variety of *Cadamba*), Kuṭaja (*Holarrhena antidysenterica*), Sarja (*Shorea robusta*), and Kētakī (*Pandanus odoratissimus*). [30] In Varṣā or 'the rains' the rivers are full of water and its banks (strewn) with uprooted trees, the reservoirs are radiant with full-blown white water-lilies and blue lotuses, [31] on the ground level land and holes cannot be distinguished, the fields are adorned with manifold crops, the rain falls without much thundering, and the sun is hidden by clouds in the sky. [32] In Çarad or 'autumn' the sun is ruddy and hot, the sky is clear and shows white clouds, the ponds are pretty with water-lilies and geese sporting among them, [33] the ground, according as it is depressed or raised or flat, forms ponds or dry land or is covered with trees, and is beautified with the flowering Vāṇa (*Barleria cristala*), Saptāhva (*Alstonia scholaris*), Bandhūka (*Pentapetes phoenicea*), Kāça (*Saccharum spontaneum*), and Asana (*Terminalia tomentosa*). [34] On the other hand, if there is any excess, or contrariety, or irregularity in the characters of the seasons, the humours of the body are deranged. [35] Phlegm should be depurated in the spring, bile in the autumn, and air in the rains, if it is desired to prevent the outbreak of any disease. [36]

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[94] The *Anas Casarca*, commonly called the ruddy goose or Brahmany duck.

THE SEVENTH CHAPTER.

DESCRIPTION OF BLUNT INSTRUMENTS. [1]

(1) Of blunt instruments there are one hundred and one (varieties). Among these the hand must be accounted the foremost, for the reason that, without the hand, no instrument can be used, and that every surgical operations must be directed by it. [2] Foreign bodies are those that cause injury to the body and the mind: and the instruments are the means of removing them. They are of the following six kinds: cruciform instruments,[95] pincer-like instruments, picklock-like instruments,[96] tubular instruments, pricker-like instruments, and accessory instruments. [3]

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[95] The text has *svastika* which is shaped like a Greek cross but with the ends of its arms bent rectangularly in the same direction. All instruments of this kind are made with two arms, moveable on a pin placed nearer to one end than the other, by which they are fastened, and on which they act crosswise like scissors. They as well as the *sandaṁça* or 'pincer-like' instruments are merely different varieties of the forceps.

[96] The text has *tāla* which means a lock and key. The ordinary Indian key is merely a picklock or hook.

(2) Now there are twenty-four varieties of cruciform instruments, two pincer-like, also two picklock-like, twenty tubular, twenty-eight pricker-like, and twenty-five accessory. As a rule, they are made of iron, but sometimes, in default of it, of other suitable materials.[97] The ends of these instruments generally resemble the faces of beasts or birds of prey. Hence they should be made so as to resemble them, following herein (the directions of medical) text-books, or (the verbal) instruction (of teachers), or (simply) imitating (other) instruments (of the same kind), and (withal) adapting them (to the requirements of each individual case). [4]

> They should be made just of the proper size, with their ends strong and polished;[98] they should be also solid, well-shaped, and capable of a firm grasp. [5]

(3) Now the cruciform instruments should be made of the length of eighteen fingers' breadth. Their ends should be shaped like the faces of the (following nine kinds of wild animals:) lion, tiger, wolf, hyena, bear, panther, cat, jackal, and deer, (and the following fifteen kinds of wild birds:) crow, heron, osprey, blue-jay, bhāsa,[99] hawk, owl, kite, vulture, falcon, Krauñca (*Ardea jaculator*), fork-tailed shrike, Anjali-karṇa,[100] Avabhañjana,[100] and Nandimukha (*Turdus Ginginianus*). The (two) arms should be held together by a pin in the form of a Masūra (*Ervum lens*), and their ends should be curved like an elephant driver's hook. These (instruments) are intended for the purpose of extracting foreign bodies (impacted) in bones. [6]

(4) The pincer-like instruments are of two kinds: with or without arms.[101] They have a length of sixteen fingers' breadth,

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[97] The Commentaries mention ivory, horn and wood.

[98] According to others "their ends should be gross (like a heron's beak) or fine (like a lion's teeth)" as the particular operation may require. So Ni.

[99] A kind of vulture that frequents cowsheds. So Ni.

[100] These two birds are of unknown identity, according to Ni. Bhā. explains none of the animals or birds.

[101] As the commentaries explain, the one with arms is like that used by barbers for depilating the nose, while the armless

and are intended for the purpose of extracting foreign bodies from the skin, muscles, veins, and nerves or tendons. [7]

(5) The picklock-like instruments have a length of twelve fingers' breadth, and are shaped like the jaws of a fish.[102] They are made either with one blade or two blades, and are intended for the purpose of extracting foreign bodies from the ears, nose, and outer canals. [8]

(6) The tubular instruments are of various kinds and used for various purposes, and have a mouth either at one or at both ends. They are employed for the extraction of foreign bodies from the outer canals, for the inspection of (internal) diseases, for the suction (of fluids), and for the facilitation of (other) operations.[103] In circumference and length they are adapted to the orifice of the outer canal or to whatever purpose may be in hand. The instruments (of this kind) are those used in the case of fistula-in-ano, hæmorrhoids, tumours, abscesses, injections into the rectum and into the bladder, hydrocele, ascites, inhalations, stricture of the urethra and stricture of the rectum. Gourds and horns (used for capping) also belong to this class. All these instruments will be described in detail further on. [9]

(7) The pricker-like instruments (or probes) also are of various kinds, used for various purposes, and are made of various diameters and lengths according to the purpose in hand. Some of

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one is like that used by goldsmiths. The latter is made of two blades, soldered together at one end; while the former consists of two arms jointed crosswise on a pin. This, therefore, is really a variety of the *svastika* or 'cruciform' instrument, and would seem to be classed here only because of its different function.

[102] The picklock is a hook or metal blade curved rectangularly at one end. Two of these may be jointed at the other end; the instrument then resembles the mouth of a certain fish. According to the commentaries this fish is the *Bhēṭunī* or *Bhēṭulī* or *Bhēkaṭī*, the tips of whose jaws are hooked. Both Bhā. and Ni., however, give an alternative interpretation of the word *tāla* which they seem to prefer. They make it to mean *matsya-çalka* or *matsya-cakra*, i.e., 'the scale of a fish.' Bhā. also gives the alternative reading *tālu* 'palate' for *tāla*.

[103] Such as the scarification of piles. So the commentaries.

them have their ends shaped like earthworms, or the feathered part of an arrow, or the hood of a snake, or a fish hook, there being two varieties of each shape. These are intended respectively for the purpose of exploring, raising, transferring, and extracting.[104] Two of them have their ends made of the shape and size of the half of a pea and slightly bent, and are used for the purpose of extracting foreign bodies from the outer canals. Six have their ends covered with cotton and are used for the purpose of wiping out (abscesses). Three have their ends shaped like spoons with a conical cavity, and are used for the purpose of applying caustic solutions, etc. Three others have their ends shaped like the fruit of the Jambu tree (*Eugenia Jambolana*), and again three, like an elephant driver's goad. These six (varieties) are used for the purpose of applying the actual cautery. One variety, which is used for the purpose of removing a tumour from the (interior of the) nose, has its end made of the size of half the stone of the fruit of the jujube tree (*Ziziphus Jujuba*), of a conical shape, and with sharp edges. One variety, which is used for the purpose of applying collyria (to the eyes), is made of the thickness of a Kalāya pea (or small Masūra or *Ervum Lens*) with both ends shaped like buds.[105] One variety, which is used for the purpose of clearing the urethra, is made of the thickness of the upper part of the stalk of the flower of the Mālatī (*Jasminum grandiflorum*). [10]

(8) The accessory instruments are (the following :—) thread, twine,[106] bandages, straps (or belts) of leather, bark (of trees),[107]

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[104] Thus, those shaped like earthworms are used for probing abscesses; those like feathered arrows, for raising a spot in order, after incision, to remove a thorn from it (see *infra*, note 111); the hood-shaped ones, for transferring any material from one part to another within the flesh. So Bhā. and Ni.

[105] Ni. adds that in length it is of eight fingers' breadth.

[106] The text has *vēṇikā*, which commonly means 'a braid of hair,' but the commentaries explain it to mean here *guṇa-traya* or 'twine made of three threads,' while *rajju* is said to mean 'thread.' Hair is mentioned further on.

[07] The root-bark or the inner bark (bast) is apparently intended. Ni. says, it is used for bandaging fractures, and adds that it is

(tendrils of) creepers, (pieces of) cloth, large round stones, a hammer,[108] the palms of the hands, the soles of the feet, the fingers, tongue, teeth, nails, and mouth, hair, the ring of a horse's bridle, a branch (of a tree),[109] spittle, fluxing [110] (the patient), making (him) happy, a loadstone; also caustics, fire, and medicines. [11]

(9) With these instruments the whole body may be operated on, that is to say, any one of its limbs as well as its joints, viscera, veins and nerves, according as the case may require. [12]

The operations (that may be performed) with them are of twenty (different) kinds:—Wrenching out, filling (the eyes or bladder etc. with oil), bandaging, raising (or smoothing),[111] curling up, transferring, turning round, exposing (or opening out), pressing, clearing canals, pulling to and fro (or loosening a foreign body), pulling out, pulling up (into its right place), setting upright, bending down, contusing,[112] stirring (with

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taken from such trees as the Palāça (*Butea frondosa*) and Uḍumbara (*Ficus glomerata*), both of which belong to the so-called *pañca-valkala* set of five trees. See *ante*, note 70.

[108] Used for the purpose of moving or loosening foreign bodies impacted in a bone. It may be made of wood or other material. So Nɪ.

[109] Nɪ. explains that a bridle-ring and a branch are required for the extraction of foreign bodies. The branch apparently is put through the ring to afford a stronger pull.

[110] *I.e.*, causing discharges from the bowels, the stomach, or the eye in order to remove foreign bodies or impurities.

[111] The text has *vyūhana*, *i.e.*, 'arranging,' 'placing in proper position.' Both commentaries explain that it means *ūrdhvī-karaṇaṁ, chittvā uttuṇḍitasya uddharaṇ-ārtham*, *i.e.*, 'raising up for the purpose of removing a thorn after incising (the raised-up part).' They add, however, that others explain it by *vārangēṇa anusaraṇam*, *i.e.*, 'smoothing (lit. following up) with the handle (of the instrument, which has been used for the operation)'; that is, after an incision (*e.g.*, after an abscess has been opened and emptied), the handle of the instrument is to be passed over the incised part in order to bring together the lips of the wound.

[112] The text has *bhañjana*, lit. 'breaking' (the continuity of the

a probe), sucking (with a horn or gourd), exploring, splitting, straightening, washing, blowing (powders into the nose), rubbing out (from the eyes, etc.). [13]

So much is certain that, considering the innumerable variety (in the circumstances of) foreign bodies, a sensible physician must be guided by his own intelligence in the choice of the precise mode of application of his instruments (in any given case). [14]

(10) Now there are twelve (kinds of) defects (that may occur) in an instrument. It may be too thick, or it may be made of impure metal, or it may be too long, or too short, or incapable of grasping, or grasping unevenly, or bent, or (of too) soft (material). Their ends may be too straight, or their pin or ends or edges may be too weak. [15]

An instrument which is free from (all) these defects and which is eighteen inches long,—such an one a physician should consider the best and with it he should perform his operations. [16]

(11) A foreign body which is visible, should be extracted with an instrument having the head of a lion or other (wild beast). If it is invisible, it should be extracted with an instrument having the head of a heron or other (wild bird). Moreover it should be extracted slowly and in accordance with (the dictates of) medical science or of one's reason. [17] Because it enters and turns with ease, and also grasps and extracts a foreign body with ease: for these reasons the heron-headed forceps is the best, and for the same reasons it can be applied, without any harm, to any part (of the body). [18]

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tissues). Bhā. explains that it refers to *çalya-karm-ādēr=mardana* or 'the contusing of a part before it is surgically operated on,' or, as Ni. puts it, *samantatō mardana*, i.e., 'contusing (a part) all round or all over.' But Ni. prefers its own alternative explanation that the term means *çiraḥ-karṇ-ādēr=āmardana* or 'well rubbing the head, ears, etc.'

THE EIGHTH CHAPTER.

ON THE APPLICATION OF CUTTING INSTRUMENTS. [1]

(1) There are twenty (varieties of cutting) instruments. They are as follows: [113]

1, *Maṇḍal-āgra* or 'circular-headed,' [with a length of six *aŋgula* or fingers' breadth. There are two sub-varieties, one with a circular edge, the other shaped like a razor].

2, *Kara-patra*[114] or 'a saw,' [with a length of twelve fingers' breadth].

3, *Vṛddhi-patra* or 'a razor.' [The handle should have a length of five and a half fingers' breadth, and the blade, one and a half, the total instrument being seven fingers' breadth long. It has two subvarieties, one with a curved, the other with a resected point. The former is what is called a *kṣura* or 'razor.']

4, *Nakha-çastra* or 'nail-parer,' [with a blade two fingers' breadth long and one finger's breadth broad, the total length of the instrument being eight fingers' breadth.]

5, *Mudrikā*, a cutting instrument of the size of the last phalanx of the index finger.

6, *Utpala-patra*, a cutting instrument resembling the petal of the blue lotus.

7, *Ardha-dhāra*, or 'a single-edged' knife. [Its total length is eight fingers' breadth, and its blade measures two fingers' breadth in length, and at its broadest, one finger's breadth.]

8, *Sūcī*, or 'needle,' [of a length of two to three fingers' breadth.]

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[113] The information, enclosed within angular brackets in the following list, is extracted from the two commentaries and has been inserted in the text for the sake of convenience. See also below, § 5.

[114] Literally: 'having a blade in the form of a hand,' the fingers representing the teeth of the saw.

9, *Kuça-patra,* an instrument shaped like the leaf of Kuça grass (*Eragrostis cynosuroides*). [Its handle is three fingers' breadth long.]

10, *Āṭī-mukha,* an instrument shaped like the beak of the Āṭī bird (*Turdus Ginginianus*). [Its blade is one, and its handle, seven fingers' breadth long.]

11, *Çarārī-mukha,* a kind of scissors resembling the face of the Çarārī bird.[116]

12, *Antar-mukha,*[116] a kind of scissors with semi-circular claws, the insides of which are filled up with straight, cutting blades. [Its length is eight fingers' breadth.]

13, *Trikūrcaka* or 'a three-edged' instrument, a trocar. [The whole is eight, and the handle five fingers' breadth long; the distance between the edges is that of a grain of rice.]

14, *Kuṭhārikā* (lit., axe-shaped), an instrument like a gum-lancet. [Its handle has a length of seven and one-half, and its blade, of one-half fingers' breadth; the latter has the shape of a cow's tooth.]

15, *Vrīhi-mukha,* or a trocar shaped like a grain of rice. [Its full size is six fingers' breadth, the handle being of two, and the blade of three fingers' breadth. Its head is shaped like a grain of rice with a very fine point.]

16, *Ārā* or 'awl' [resembling a shoemaker's awl; sixteen fingers' breadth in total length, with a sharp end of the size of sesamum seed.]

17, *Vētasa-patraka,* an instrument shaped like the leaf of the rattan. [The blade is four fingers' breadth in length, one finger's breadth thick, and very sharp; the handle is also four fingers' breadth long.]

18, *Vaḍiça,* an instrument shaped like a fish-hook. [Its total length is six fingers' breadth, its hook being one-half and its handle five and a half fingers' breadth.]

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[115] Ni. says that this is a bird with a long beak. There are two varieties of it: one with white shoulders, the other with a red head; it is the former kind which is called *Çarārī* or *Çarālī.*

[116] Literally: 'having (blades) in the interior of the mouth.'

19, *Danta-çaŋku* or 'tooth-pick.' [It may be used for cleaning the teeth from tartar and broken bits. Its head is one-half finger's breadth long. It is quadrangular, and with a sharp edge; and in the upper part of its handle it is like the *vrīhimukha*.]

20, *Ēṣanī* or 'probe.' [2]

(2) The *maṇḍalāgra* and *karapatra* are principally[117] used for cutting through and scarifying; the *vṛddhipatra*, *nakhaçastra*, *mudrikā*, *utpalapatraka*, and *ardhadhāra*, for cutting through and cutting into;[118] the *sūcī*, *kuçapatra*, *āṭīmukha*, *çarārīmukha*, *antarmukha*, and *trikūrcaka*, for evacuating (abscesses, etc.); the *kuṭhārikā*, *vrīhimukha*, *ārā*, and *vētasapatra*, for puncturing, also the *sūcī*; the *vaḍiça*[119] and *dantaçaŋku* for extracting; the *ēṣaṇī*, for probing and evacuating;[120] and the different kinds of *sūcī*, for sewing. This enumerates the eight kinds of surgical operations for which *çastra* or 'cutting instruments' are used. [3]

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[117] *I.e.*, they may be used also for other suitable purposes, as indicated by the particle *ca* 'also.' So NI. and BHĀ.

[118] The text has *chēdana* and *bhēdana*: the difference indicated is that of deep and superficial incision. The former means 'cutting through,' 'section,' and includes also the operations of dividing and excising. The latter means 'cutting into' and includes both opening and incising. *Vyadhana* means 'puncturing' and 'perforating.'

[119] A *vaḍiça* or 'fish-hook-shaped instrument' is also mentioned among the *yantra* or 'blunt instruments' (see Chapter VII, § 7). The reason is obvious: it must be made either blunt or sharp according to the purpose for which it is intended. But both BHĀ. and NI. explain that as a *yantra* or 'blunt instrument' it may be of any suitable size, while as a *çastra* or 'cutting instrument' it must be of the fixed size of six fingers' breadth, and have a sharp point. They add that for a similar reason also the *ēṣaṇī* or 'probe' is mentioned among both kinds of instruments.

[120] The text has *ānulōmya* by which, as the commentaries explain *visrāvaṇa* or 'evacuating' is intended, not 'serving as a guide' (as Dr. U. C. Dutt translated), which is not any 'surgical operation.'

(3) We shall now briefly explain the mode of holding these instruments (when they are used) in any operation. The *vṛddhipatra* should be held at the junction of the blade and handle; in fact, all instruments used for an incision (should be held in this way). The *vṛddhipatra* and *maṇḍalāgra*, when used for scarifying, should be held with the hand a little raised: when used for evacuating (abscesses) they, and in fact all instruments, should be held by the forepart of the handle. In the case, however, of children, of old or delicate or timid men, of women, and of kings and princes, an evacuation should be made with the *trikūrcaka*. The *vrīhimukha* should be held with the thumb and forefinger, and with its handle covered within the palm. The *kaṭhārikā* should be held in position with the left hand, and struck with the middle finger and thumb of the other hand held firmly together. The *ārā*, *karapatra* and *ēṣaṇī* should be held at their extremities. The remaining instruments should be held according to the requirements of each case. [4]

(4) As to the shapes of the instruments they are, in a general way, indicated by their names.

(5) As to their dimensions, the length of the *nakha-çastra* or 'nailparer' and the *ēṣaṇī* or 'probe' is eight fingers' breadth, that of the *sūcī* or 'needles' will be given (hereafter).[121] The rest of the instruments are six fingers' breadth in length.[122] [5]

(6) The good points in an instrument are the following: it should have a well-made handle, it should be made of good iron, and it should have a fine edge, a pleasing shape, and a well finished end, and it should not be fearful to look at. The edge

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[121] *I.e.*, in Chapter XXV, on the various kinds of surgical operations. According to Ni. some insert here the following direction: "the *mudrikā* is of the size of the last phalanx of the index finger; the *çarārī-mukha* has a length of eight fingers' breadth and is also called *karttarī* or 'scissor.'"

[122] The text of this paragragh [5], as given in Jīvānanda's edition, is quite out of order. The true text, as shown by the commentaries and by the logical order of the subjects of the paragraphs, is given in the edition of Kavirāj Gaŋgāprasād Sēn, and is adopted in my translation.

of instruments, used in incising, should be of the fineness of a Masura *(Ervum Lens)*; of those used in scarifying, of half a Masura; of those used in puncturing and evacuating, of a hair; and of those used in dividing, of half a hair.[123] As to the *vadiça* or 'hook' and the *danta-çaŋku* or 'toothpick,' the former should have a curved end and a fine point, while the latter should have an end shaped like the first leaf of barley. An *ēṣaṇī* or 'probe' should, with regard to its end, be shaped either like an earthworm, or like the previously mentioned instruments (*i.e.*, the hook and toothpick).[124] On the other hand, the defects in an instrument are the following eight: if it is bent, or blunt, or jagged, or too thick or too thin, or too long, or too short. Hence instruments which are free from these defects should be used. The *kara-patra* or 'saw' is the only exception; for, being used for the purpose of cutting through bones, it must have a jagged edge. [6]

(7) The tempering of these instruments may be done in three ways: by means of an alkaline solution, or of water, or of oil. Those tempered in an alkaline solution are used in excising arrows and foreign bodies, and in dividing bones: those tempered in water are used in excising or incising[118] or cleaving muscles: those tempered in oil, are used in puncturing veins and dividing nerves or tendons. For sharpening these instruments a smooth bone of the colour of Māsa (*Phaseolus Roxburghii*) should be used, and for preserving their edge, a case made of the wood of Çālmalī (*Bombax malabaricum*). [7] Here comes in (the following verse):—

> When an instrument (has been selected) of a good make and with an edge so keen as to divide the hairs on the skin, and when it has been grasped at the proper place [see *ante*, § 3], only then it may be employed in any surgical operation. [8]

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[123] Nr. here points out, that the fineness of the edge will vary, according as the same instrument (*e.g.*, a *vṛddhi-patra* or 'knife') is used for an incision or an excision.

[124] This variety in shape of the probe is, as the commentaries explain, expressed in the text by the particle *ca* 'and,' which is omitted in Jīvānanda's edition.

(8) Substitutes for cutting instruments are the following: bamboo, crystal, glass, ruby, leeches, fire, caustic, the nails, leaves of Gōjī (*Elephantobus scaber*) or Çēphalikā (*Nyctanthes Arbor-tristis*) or Çāka (*Tectona grandis*),[125] young shoots, hairs, and the fingers. [9]

> These substitutes may be used in the case of infants or of persons who are afraid of surgical instruments, or when such instruments are not available. The (first-named) four objects, bamboo, crystal, glass, and ruby, should be used for cutting through or cutting into[118] some part. [10] The nails should be used, if those two operations as well as that of extraction can be done with them. The mode of using caustics, fire, and leeches will be explained subsequently. [11] If there is any formation of pus in the mouth or the eyelids, it may be evacuated with the leaves of Gōjī or night-jasmin or teak. In default of probes hairs or the fingers or a young shoot will be found useful for exploring. [12] A wise physician will get all these instruments made of pure iron and with sharp edges, by a blacksmith who is skillful and experienced in his craft. [13] A physician who knows the use of cutting instruments always attains success; hence one should not fail to acquire experience in their handling. [14]

THE NINTH CHAPTER.

On Practical Training in Surgical Operations. [1]

(1) Even when a pupil has learned the whole of the medical text books, he must still be made to acquire practical proficiency. He must be instructed practically how to perform surgical opera-

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[126] According to both commentaries Gōjī is either the same as Gōjihvā (*Elephantobus scaber*) or Çākhōṭaka (*Streblus asper*). Çēphalikā is the 'night jasmine,' and Çāka is the Teak tree. The leaves of all these are used as vulneraries in the form of an epithem.

tions and how to apply oils and other (medicaments). However great his theoretical knowledge may be, unless he acquires also practical skill, he will never be a proficient in his surgical practice. [2]

(2) Now every kind of deep incision as well as the operations of excising and dividing may be shown (to the pupil) on pumpkin-gourds, bottle-gourds, water-melons, and various kinds of cucumbers.[126] The operation of superficial incision (or opening) may be shown on leather-bags, bladders and pouches, filled with slush: scarification, on stretched pieces of leather covered with hair: puncturing, on the veins of dead animals or on stalks of the water-lily: probing, on the apertures of worm-eaten wood, bamboo, reed, any tubular object, or dried bottle-gourds: extracting, on the pulp of the jack-fruit, the bel-fruit, or the Vimbī-fruit (*Cephalandra indica*), or on the teeth of dead animals: evacuating (abscesses), on a lump of wax applied to a board of Çālmalī wood (*Bombax malabaricum*): sewing, on the ends of two thick pieces of cloth or of two pieces of soft leather: bandaging, on the various large and small limbs of a human figure made of cloth or clay, etc.: bandaging the root of the ear, on a piece of soft flesh or the stalk of a water-lily: applying the actual and virtual cautery, on pieces of soft flesh: introducing catheters, and compressing abscesses (formed) within the abdominal cavity, on the spout of an earthen vessel filled with water, or on the mouth of a bottle-gourd or similar objects. [3] Here come in (the following verses):—

> An intelligent physician who acquires a practical knowledge of surgery by operating on these and similar suitable objects, in the manner above explained, will never go wrong in any of his operations. [4] Hence, if he wishes to attain proficiency in the use of cutting instruments, and of the virtual or actual cautery, he should acquire a practical knowledge of the several operations by practising them on those objects which have been above shown to be respectively suitable for them. [5]

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[126] The text mentions three kinds: Trapusa or *Cucumis sativus*, Ērvāru or *Cucumis utilissimus*, and Karkāru or *Cucumis Melo*.

THE TENTH CHAPTER.

DIRECTIONS FOR VISITING A SICKROOM.

(1) After having learned his text-book and understood its meaning, and after having seen operations performed and acquired practical skill in them himself, in short after having mastered the whole subject of medical science, (the candidate) should obtain the king's permission (to practise). Then, after having cut his nails and hair, bathed and dressed in clean clothes, taken an umbrella and a stick in his hand, and put on shoes, simple in attire and good at heart, with polite address and without ostentation, friendly inclined towards all creatures, and accompanied by a trusty attendant, he may now undertake to visit a sickroom. [2]

(2) At a time when the messenger, the weather, the (behaviour of the) kites and other auguries[127] are favourable, he should go to visit the patient's house, and having entered it, he should view the patient, touch him, and question him. By these three modes of examination some say that most diseases can be diagnosed. But this is not correct. There are six modes of diagnosing diseases; namely by the five senses, *i.e.*, hearing, etc., and by questioning. [3] As symptoms discernible by the sense of hearing such as these may be mentioned: in diseases, characterised by a discharge from an abscess, air escapes with a noise, bringing out with it frothy blood. Symptoms discernible by the sense of touch are coolness or heat, smoothness or roughness, softness or hardness, and other tangible qualities (of the skin) in fever, consumption, and other (diseases). Symptoms discernible by the sense of sight are corpulence or emaciation, vitality, characteristic remarks, energy, change of colour, and so forth (of

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[127] The text has *nimitta* and *maŋgala*, two words of a very general character for 'omen' or 'good omen.' The commentaries refer the former to metereological conditions, such as an agreeable breeze, and the latter to such objects, as the *svastika* or 'cross,' a vessel full of water, etc.

the patient). Symptoms discernible by the sense of taste[128] are the various tastes noticeable in morbid secretions of urine and other diseases. Symptoms discernible by the sense of smell are the odours emanating from inflammatory or non-inflammatory states (appearing) on the approach of death or similar conditions. By questioning, (the physician) may ascertain the (patient's) country,[129] time,[130] caste, habits and diet,[131] the cause of his disease, the nature of his pain, his strength and appetite, the regularity or irregularity in his passing of wind, urine and fæces, the duration of his disease, and similar particulars. Seeing that there is a similarity between the (six) modes of examination and the (derangements of the three) humours, the physician is in a position to diagnose a disease from its symptoms corresponding (severally with the six modes of examination).[132] [4] Here come in (the following verses):

Diseases which are wrongly observed, and badly described, and badly examined by touch, will confound the physician.[133] [5]

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[128] Ni. explains that this does not refer to the sense of taste of the physician, but of bees, ants, and similar insects who are attracted by urine. (See note 133).

[129] The country may be either *jāŋgala* 'wild,' or *anūpa* 'marshy, or of the ordinary kind. So Ni.

[130] Time may be considered either from the permanent (*nityaga*) or accidental (*āvasthika*) point of view. The former refers to the climatic conditions of the patient's country. The latter refers to the patient's age, or the circumstances of his disease, such as when his fever comes and goes, etc. So Ni. and Bhā.

[131] The text has *sātmya*, lit. 'what is conducive to health' or 'hygiene.' Under this head the commentaries explain that the physician should enquire into both the patient's habits and his diet.

[132] This is a rather difficult clause. Bhā. does not explain it at all, and it evidently did not exist in its recension of the text (see below, note 133). In my translation I have followed Ni.'s explanation. Ni. takes *ātman* to mean *dōṣa* or 'the (three) humours,' which is an unusual meaning, but I know nothing better: *ātman* often means *çarīra* 'body,' and this might be made, though not so well, to fit in with Ni.'s explanation. The argument of the clause is as follows. There are six means of diagnosis: the five senses and questioning. Similarly there are six kinds of symp-

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toms of the deranged humours, namely five sensible (audible, visible, tangible, tasteable and smellable symptoms), and one ascertainable by questioning. Morever these six kinds of symptoms vary according as the derangement is of bile or phlegm or air. Seeing that there exists this similarity between the two sets, the physician is thereby enabled to identify the symptoms of derangement of any of the three humours, and thus to identify the disease itself which is caused by the deranged humours. Thus, in the case of derangement of the bile, the sores due to it are known by touch, the yellowish colour due to it, by the eye, the sourish taste due to it, by taste, the pungent smell due to it, by the nose, the biting and burning sensations due to it, by questioning. And so forth, in the case of other deranged humours.

[133] There is here a distinct trace of an older recension. This verse clearly refers to the same threefold means of diagnosis (sight, touch, questioning) which are mentioned above in §[3], and there declared to be incorrect. The latter part of §[3], and the whole of §[4], are an interpolation of a later revisor. The original recension evidently still existed in the time of the commentator Cakrapāṇidatta whose commentary, the Bhānumatī, shows that he read the text as follows: §[3]......*prāyaçō vēditavyāḥ* ॥ §[5] *bhavati c=ātra* । *mithyā-dṛṣṭā vikārā hi dur-ākhyātās=tath=aiva ca* । *tathā duḥ-parimṛṣṭāç=ca mōhayēyuç=cikitsakam* ॥ 1 ॥ *tasmāt=parīkṣyāḥ satataṁ bhiṣajā siddhim=icchatā* । *yukty=aiva vyādhayaḥ sarvē pramāṇair=darçan-ādibhiḥ* ॥ 2 ॥ His recension omitted the last two clauses of §[3] and the whole of §[4]. It added, on the other hand, one verse to §[5]. On this text, as he read it, Cakrapāṇidatta remarks that the word *prāyaçō* as well as the particle *ca* 'and,' appended to *pṛcchēt* in the preceding clause, indicate that, besides the senses of sight and touch, also the senses of smelling and hearing as well as *anumāna* or 'inference' are admissible as means of diagnosis. He explains that 'inference' is necessary, because the sense of taste cannot be exercised by the physician on the patient directly; he must do it through the intermediacy of ants from whose attraction by the urine he infers the presence of sugar in urinary diseases (see note 128). He then quotes Caraka as saying both that "there are three modes of examination, by sight, touch, and

(3) Having thus fully examined a disease, the physician should undertake the cure of curable diseases, and the relief of the relievable ones, but the incurable ones he should not attend to; also diseases which have existed for more than one year, he should avoid to treat. [6] But even curable diseases of the following persons are, as a rule, most difficult to treat; namely: Brāhmans learned in the Vēdas, kings, women, children, old and timid persons, royal servants, gamblers, physically weak people, contemners of physicians, concealers of their diseases, poor, stingy, and irascible people, also people incapable of self-control, and such as have no natural protectors.[134] The treatment of these a

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questioning," as well as that "there are two modes of examination, by observation (*pratyakṣa*) and inference (*anumāna*)." The latter, he explains, means that observation refers to sight and touch, while inference refers to the other senses. Ḍallaṇa Miçra, in his commentary, the Nibandha Saŋgraha, further states that the Pañjikāra (*i.e.*, Gayādāsa) read the text exactly as Cakrapāṇidatta did, and declared that those who held "a sixfold mode of examination did not properly understand the text-book." The additional verse, which is above quoted from the original recension, may be thus translated: 'hence a physician who is desirous of success must always examine every disease in the light of the evidence afforded by sight, touch, and questioning, and not omit to use his reasoning powers.' The phrase *yuktyā ēva* lit., 'even together with reasoning or inference' may be noted. It leaves sufficient room for any evidence afforded by smell, sound, and taste. The older recension appears to me to have for itself the preponderance of authority; but as the newer recension only is now found in the printed texts, I have followed it in my translation.

[134] The reasons why these persons are difficult to treat are thus given by Ni.: the Brāhmans on account of their predisposition to illness through the frequency of their ceremonial ablutions; kings on account of their intolerance of a prescribed regimen, or their delicate constitution; women, on account of their reluctance to disclose their diseases or to submit to enemas, etc.; the young and aged, on account of their delicate constitution and consequent inability to bear surgical or medical applications; the timid, on account of their reluctance to submit to medical treatment; royal servants, on account of their not being master of

physician should only undertake with great care: then he will secure for himself merit, wealth, pleasure, and fame. [7] Here comes in (the following verse):

> A good physician will avoid to be alone, or sit close to, or to jest with women; nor will he accept any present from them excepting only articles of food. [8]

THE ELEVENTH CHAPTER.

On the Preparation and Use of Caustics. [1]

(1) Of all cutting instruments and their substitutes [see chap. 8, § 8] caustics (or vegetable alkalis) are the most important, because by means of them deep and superficial incisions [see note 118] and scarifications may be made, derangements of the three humours (air, bile, and phlegm) may be rectified, and some diseases can be treated with special advantage.[135] [2] *Kṣāra* or 'caustics,' are so called because they are a means of attenuating (*kṣaraṇā*) or destroying (*kṣaṇana*) (deceased skin, muscles, etc.). On account of various kinds of medicinal plants entering into their composition they serve to rectify the three humours when deranged.[136] On account of their white colour, their nature is lunar (*i.e.,* cooling); but this fact, is by no means inconsistent

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their time; gamblers, on account of their absorbing attachment; the weak, for the same reason as the young and aged; contemners of physicians, because they are too conceited to abide by the prescribed regimen; concealers of their diseases, because they will not speak out; the poor, on account of their inablity to purchase medicines; the stingy, because they grudge the cost of medicines; the irascible, because their ebullitions of anger intensify their diseases; the incapable of self-control, because of their indulgence in unwholesome things; those who have no natural protectors (*i.e.,* widows and orphans), because they have no one to attend to them.

[135] Ni. explains that this refers to the case of hæmorrhage (*rakta-pitta*) and piles (*arças*).

[136] Ni. adds that for the same reason they are also useful in the treatment of hæmorrhage and piles. See preceding note.

with their power of burning, maturing and tearing :[137] indeed, on account of the large number of heating medicaments (which enter into their composition) they are acrid, hot and pungent. Their (external) use promotes suppuration, corrosion, depuration, granulation,[138] desiccation, hæmostasis, and scarification. Their (internal) use cures worms, acidity, deranged phlegm, skin-diseases, poisonings, and obesity. An excessive use of them induces impotence. [3]

(2) Potashes are of two sorts: for external application, and for internal administration. Their external use is indicated in the case of skin-diseases, keloid, ringworm, leucoderma, lepra, fistula-in-ano, tumours, unhealthy sores, sinuses, condyloma, black moles, chloasma, brown spots on the face, and warts; also in the case of abscesses, worms and poisoning (both on the surface) ; also of the (following) seven diseases of the mouth : tumour under the tongue (or ranula), tumour on the tongue, inflammation of the gums, inflammation due to external injury, and three kinds of *rohiṇī* or inflammation of the throat ; in these (seven) cases only, caustics should be applied as a substitute of cutting instruments.[139] Their internal use is applicable in the case of chronic or slow poisoning, abdominal tumours, abdominal enlargements, cessation of digestion, indigestion, want of appetite, constipation, urinary deposits, calculus, deep-seated abscesses, (intestinal) worms, (internal) poisoning, and piles. [4] Their (internal administration) is unsuitable in the case of persons who have a tendency to (internal) hæmorrhage and bilious fever, of children, and old or weak people ; also in the case of persons suffering from giddiness, frenzy,[140] fainting, amaurosis, or other

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[137] Nɪ. points out that intense cold (*himānī*) has the same effect as great heat.

[138] The commentaries say that some omit *rōpaṇa* or 'granulation,' because (they say) a healthy sore granulates by itself, and does not require any caustic to promote it ; a caustic may rather prove noxious.

[139] The commentaries explain that there are five kinds of *rōhiṇī*, but two of them are incurable.

[140] Caused by poisoning, intoxication, derangement of the blood, or eating of (fresh) betel nuts : so Nɪ. On the poisonous proper-

similar diseases. Caustics for internal use are prepared in the same way as those for external use, by burning and straining. The details (of the method of their administration) will be given elsewhere.[141] [5] Caustics may be made of three strengths: weak, moderate, and strong.

(3) He who wishes to prepare a caustic, should, on an auspicious day in the autumn, after purifying himself and fasting, (select) a large-sized, middle-aged, uninjured[142] Muṣkaka tree (*Stereospermum suaveolens*), bearing dark flowers[143] and growing on an auspicious spot[144] on a (lonely) mountain, and perform the *adhivāsana* or 'preliminary ceremony,' saying the following incantation[145]:—

> "Oh thou tree of fiery power! thou of great power! may thy power not be lost! Oh thou auspicious one, stay

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ties of the Areca Catechu, see Pharmacographia Indica, Vol. III, p. 524. It is especially the fresh nut which causes intoxication, and the sensations of strangling and giddiness.

[141] The commentaries refer to the chapter on *gulma* or abdominal tumours, and subsequent chapters; *i.e.*, to Part VI (*Uttaratantra*), chapter 42 ff., where a number of formulae will be found, into the composition of which various kinds of caustics enter. The commentaries, however, add that, in the case of caustics for internal use, the second boiling is omitted, and the measures for their three strengths are one pala, three karṣa (or three-quarter pala), and half a pala of alkaline ashes respectively.

[142] By fire or insects: so the commentaries.

[143] The Muṣkaka tree is also called *Ghaṇṭāpāṭali* or *Ghaṇṭāpāruli*. It is probably a variety, with particularly dark-coloured flowers, of the Pāṭali or *Stereospermum suaveolens*, which has dark, dull-crimson flowers, and a campanulate calyx, and is sacred to Durgā. BHĀ. quotes from Viçvāmitra the following verse: 'there are four varieties of Muṣkaka with white, dark (*kāla*), red and yellow flowers, among them the dark-flowered one is considered the best.'

[144] *I.e.*, in which there are no holes (*çvabhra*) nor any burying place, etc. So BHĀ.

[145] The *adhivāsana* is an oblation (*bali-karman*) accompanied with an incantation (*mantra*). According to the commentaries, Bhōja

> even here and accomplish my work! When once my work is done, then thou mayest go to heaven!"

After which he should make an oblation with a thousand white flowers. At daybreak (of the next day), if he observe no change (in the tree) nor any marvel,[146] he should proceed as follows.[147] He should cut down suitable pieces (of the tree), and having

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gives the following directions and incantation: 'he should there, with his face to the east, offer an oblation, and then, on all four sides, with joined palms, devoted mind and pure body, addressing the tree, repeat (the following words): "Whatever spirits may inhabit this tree, let them depart hence; for to-morrow this tree is to be cut for a high object!"'

[146] *I.e.*, if no branches are broken or other damage done; and no shower of blood (*rudhira-varṣa*) has fallen. So the commentaries.

[147] In the above given translation I have adopted the older recension which, to judge from Cakrapāṇidatta's commentary, appears to have been contained in the copy of Suçruta which he annotated. As it is not to be found in any of the modern editions of Suçruta, I give it here, reconstructed from the commentaries. In the edition of Kavirāj Gangāprasād Sen, an attempt to do so is made, but it is given in an imperfect form. It runs as follows:

... *adhivāsy=ābhimantry=ānēna mantrēṇa* | *agnivīrya* etc. up to *gamiṣyati çvēta-puṣpaṁ sahasraṁ juhuyāt* ‖ *prabhātē vaikṛtam=adbhutaṁ na paçyēt tad=upakalpayēt* | *khaṇḍaçaḥ prakalpy=āvapāṭya nirvātē dēçē citiṁ kṛtvā tila-nālair=ādīpayēt* ‖ etc.

The later and ordinary recension is given in Jīvānanda Vidyāsāgara's and other editions. Its translation will run thus:

'... and perform the adhivāsana ceremony. On the following day he should cut down the tree with the following incantation: "Oh thou tree of fiery power" (etc., as above in the text); after which he should offer an oblation with a thousand white and a thousand red flowers. He should then cut the tree into suitable pieces' (etc., as above in the text).

This later recension makes the whole tree, "a large-sized one," to be cut down, while the older recension only directs pieces of it to be lopped off. For the case in hand (merely preparing some alkaline ashes) the latter is obviously the more rational one; accordingly I have preferred it.

piled them for burning in a spot sheltered from wind,[148] he should set fire to them with stalks of Sesame. When the fire has burned out, he should collect separately the ashes of the wood and the nodules of the ashes.[149] [6] In the same way the following trees may be burned, including their branches, leaves, fruit, and roots:[150]

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[148] According to Ni., one recension of Suçruta interpolates here *sudhā-çarkarāç=ca prakṣipya*, i.e., 'and having thrown in some limestone,' and afterwards substitutes *kaṭa-çarkarāç=ca* or 'excess of (lime-)stone' for *bhasma-çarkarāç=ca* or 'nodules of ashes.' Bhā. knows nothing of this recension: apparently in Cakrapāṇidatta's time it did not yet exist. In the modern editions of Jīvānanda, Avināça Candra Kaviratna, and Gangāprasād Sen, confusedly, the interpolation is adopted, but not the substitution. Besides "excess of lime-stone" is a very forced interpretation of the word *kaṭa-çarkarā* which is otherwise only known as a name of the Bonduc-nut; see below §[9].

[149] The *bhasma-çarkarā* or 'nodules of ashes' are thus explained by Bhā. from the Nighaṇṭa: "When during the burning of the (green) Muṣkaka wood, its sap exudes, it forms hard particles with the ashes; these particles are called 'nodules of ashes.'" According to the commentaries, these nodules are collected separately, in order to be used in a subsequent stage of the preparation of the alkaline lye. See below §[9].

[150] This does not mean (as it appears to have been misunderstood by some) that the whole tree should be cut down and burnt, but that any part of it may be used; the remark has evidently special reference to the case of climbing plants (such as the *Kōṣātakī*) which would afford but little wood. The commentaries here speculate on the reason why the *Muṣkaka* is mentioned separately. They give two alternative explanations. (1) Either *Muṣkaka* by itself, or a mixture of all the others (*Kuṭaja*, etc.) together, may be used to prepare ashes. (2) All the plants (*Muṣkaka* as well as Kuṭaja, etc.), in combination, must be used, but in that case one-half of the ashes must be of *Muṣkaka*, while the other half should be of *Kuṭaja* etc. combined. Bha. seems to prefer the former, while Ni. adopts the latter alternative.

Kuṭaja	*Holarrhena antidysenterica* (Conessi bark),
Palāça	*Butea frondosa* (Bastard Teak),
Açvakarṇa	*Shorea robusta* (Sāl tree),
Pāribhadraka[151]	*Erythrina indica* (Coral tree),
Vibhītaka	*Terminalia belerica* (Beleric myrobalan),
Āragbadha	*Cassia Fistula* (Indian Laburnum),
Tilvaka	*Symplocos racemosa,*
Arka	*Calotropis gigantea* (Gigantic Swallowwort),
Snuhi	*Euphorbia neriifolia*
Apāmārga	*Achyranthes aspera* (Prickly Chaff-flower),
Pāṭalā	*Stereospernum suaveolens,*
Naktamāla	*Pongamia glabra,*
Vṛṣa	*Adhatoda Vasica* (Malabar-nut tree),
Kadalī	*Musa paradisiaca* (plantain),
Citraka	*Plumbago zeylanica,*
Pūtīka	*Caesalpinia Bonducella* (Bonduc-nut),
Indravṛkṣa[152]	*Wrightia tinctoria,*
Āsphōta[153]	*Salvadora persica,*
Açvamāraka	*Nerium odorum* (Oleander),
Saptacchada	*Alstonia scholaris,*
Agnimantha	*Premna integrifolia,*
Guñjā	*Abrus precatorius* (Jequirity),
Four varieties of Kōśātakī[154]	*Luffa.* [7]

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[151] According to the commentaries, this may also be the Deodār (Cedrus Deodara).

[152] Dr. U. C. Dutt identifies this with *Terminalia Arjuna.* But Nɪ. says that it is a kind of Kuṭaja, of which there are two varieties: one with brownish flowers, the other with white flowers. Dr. Dymock's Pharmacographia Indica, Vol. II, p. 397, says that the *Wrightia tinctoria* is often confounded with and substituted for *Holarrhena antidysenterica,* but that it has "white jasmin-like flowers."

[153] This is the identification given by Dr. U. C. Dutt. Nɪ., however, identifies it with Sārivā (*Hemidesmus indicus* or *Ichnocarpus frutescens*). Bʜā. does not explain it. Both Sārivā are climbing plants.

[154] According to the commentaries these are: 1, with large fruit,

Next one drōṇa of the ashes should be stirred into six drōṇas of water or of the prescribed kind of urine,[155] then strained (through cloth) twenty-one times, and finally boiled slowly in a large pan, agitating it (all the time) with a ladle. When (the fluid) becomes clear, red-coloured, pungent, and soapy to the touch,[156] it should be taken off (the fire), strained through a large piece of cloth, and placed once more on the fire, while the residium may be thrown away. Of the alkaline water, thus obtained, (eventually) either one kuḍava (*i.e.*, 8 pala) or one kuḍava and a half (*i.e.*, 12 pala) will have to be taken.[157] [8] In the meantime some Bonduc-nuts, nodules of the ashes [see note 149], bivalve-shells and conch-shells, after having been made red-hot in an iron vessel,[158] should be thrown into the afore-mentioned (8 or 12 pala of) alkaline water, crushed to powder, and stirred into a paste. Then this paste should

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2, with small fruit, 3, with yellow flowers, 4, with white flowers. They are all climbing plants or vines.

[155] *I.e.*, of a cow. The reference is to the 1st paragraph of the 7th chapter of the Kalpasthāna (or 5th section); [see page 640, line 16, of Jīvānanda's edition]. So Ni. But the reference in Bhā. is to the division on urine in the 45th chapter of the Sūtrasthāna (or 1st section), where the urine of a number of other animals is also permitted; [see paragraph 1 on page 191 of Jīvānanda's edition.] The latter reference is undoubtedly the correct one.

[156] This stage is generally reached when the fluid is decocted to one-fourth, or according to others, to one-third of its original quantity. So the commentaries. See below note 159.

[157] In the case of fluids the equation of the quantities is doubled. Thus for solids or dry substances one kuḍava is equal to 4 pala, while for fluids it is equal to 8 pala. See paragraph 8 in chapter 31 of the Cikitsāstāna (or 4th Section), page 538 of Jīvānanda's edition.

[158] Bhā. says that an iron vessel is used either because of its hardness, or because the iron enhances the strength of the preparation. The English word *potash* is said to be "derived from the circumstance that the water in which the ashes are washed is evaporated in iron pots."

be superadded to that afore-mentioned decoction[159] and (the whole) should be boiled under constant, attentive agitation

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[159] I read *tēn=aiva prativāpya*, i.e., 'having superadded to that very (decoction).' The commonly printed recension reads *tēn=aiva dvi-drōṇē 'ṣṭa-pala-sammitaṁ çaŋkhanābhy-ādīnāṁ pramāṇaṁ prativāpya*, i.e., 'having superadded conch-shells etc. at the rate of 8 pala to that very decoction consisting of 2 drōṇa.' Both readings are noted and commented on by Bha. and Ni.; and Bha. seems to prefer the reading which I have adopted, and which is clearly, as I shall show, the older and better one. The directions given in the latter are as follows: Of wood-ashes one drōṇa should be taken; ashes being solid, a drōṇa is equal to 256 pala. Of water (or optionally urine) 6 drōṇa must be taken, *i.e.*, six times the quantity of water, *i.e.*, 1536 pala (not 3072 pala, as one might suppose, see note 157; the calculation of both commentaries is explicit on this point). The mixture of wood-ashes and water (or urine) is to be reduced or thickened by decoction: no definite limit is stated; this is left to the physician's discretion; practically the required state of decoction is reached at one-third or one-fourth of the original quantity (see note 156). Of the decocted mixture either 8 pala or 12 pala (here the mode of measuring liquids is adopted, see note 157) may be taken, again at discretion. The commentaries here expressly state that these quantities are mentioned to serve as a guide to the quantities of the extra-ingredients which have to be superadded. Of these extra-ingredients there are four (bonduc-nut, etc). The quantities of these are once more left to the physician's discretion: as Bha., expressly states, more or less of them may be taken, only there should be sufficient to form a paste with 8 or 12 pala of the decoction; thus the latter quantity is a sort of guide. Having prepared this paste of extra-ingredients (the technical term for which is *prativāpa*), it should be thrown into the remainder of the decoction (*i.e.*, into what remains after taking away 8 or 12 pala). The whole is now to be boiled until it reaches the proper state of consistency. Now in course of time, it became the accepted practice to decoct the original quantity of 6 drōṇa or 1536 pala of water (or urine) to one-third, *i.e.*, to 2 drōṇa or 512 pala, and to let the ratio of the quantities of the extra-ingredients be 8 pala. The reason was this: taking 8 pala of each of the 4 extras, we

(with a ladle). Great care must be taken, lest (the solution) becomes too thick or too thin. When it has reached the (proper stage of) boiling, it should be removed (from the fire) to a sheltered place and deposited in an iron jar with its mouth well covered. This (process yields a caustic solution of) middling strength. The same process, but without the addition of any superadded ingredients [*i.e.*, without the paste of bonduc-nuts, etc.], gives a weak solution or (what is called) *saṁvyūhima* or 'a simple mixture.' [9] As extra-ingredients such of the following drugs as are available should be used :—

Dantī	*Baliospermum axillare*,
Dravantī[160]	A kind of Dantī,
Citraka	*Plumbago zeylanica*,
Lāŋgalakī	*Gloriosa superba* (Superb Lily),
Pūtīka-pravāla[161]	Sprouts of *Caesalpinia Bonducella* (Bonduc-nut tree),
Tālapatrī	*Curculigo orchioides*,
Viḍa	Viḍ-salt, black salt,
Suvarcikā	Carbonate of Soda,

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obtain 32 pala, and these are the 16th part of 512 pala; a mixture in these proportions was supposed to give the best potash; the 8th part was supposed to give a middling sort, and the 4th part, a weak sort of potash. When this had become the accepted practice, the text was altered and the above-mentioned passage was interpolated. The commentaries, however, note that some decocted the original quantity to one-fourth, and others, even to one-sixteenth (or $\frac{1536}{16}$ = 96 pala); again others made 8 pala to be the total quantity of the extra-ingredients, *i.e.*, 2 pala of each of the four. All this shows that the original text was drawn so as to leave a wide discretion to the operator.

[160] The identity of this plant is uncertain. The commentaries say that it is a kind of Dantī, which BHĀ. describes as *jīvita-patrā* or 'having living leaves (?)'; but NI. adds that according to Bhādālaka it is the same as *Saṁvarī*. But the identity of the latter is also doubtful; it may be *Salvinia cucullata* or *Anthericum tuberosum*.

[161] NI. says that according to some this is Chirivilva or *Pongamia glabra*.

Kanaka-kṣīrī[162]	A kind of earth of gold colour,
Hiŋga	*Ferula alliacea* (asafoetida),
Vacā	*Acorus Calamus* (Sweet Flag),
Viṣa	*Aconitum ferox* (Indian Aconite),

A çakti (or half a pala) of each of these drugs, in fine powder, will make up the extra-ingredients. The caustic solution prepared with them, is the strongest and (is called) *pākya* or 'the boiled one.'[163]

(4) In the administration of these (three kinds of caustics) account must be taken of the (nature of the) disease and the strength (of the patient). If any caustic solution should loose its power, some fresh alkaline water may be added, by which its strength will be re-gained.[164] [10] Here come in (the following two verses) :—

> A caustic should be neither too strong, nor too weak, nor too white ; it should be soft and soapy (to the touch) ;

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[162] The commentaries give the synonym *kaŋkuṣṭha*, which suggests the possibility of the proper reading being *kanaka-kṣāra*, as *kanaka-kṣīrī* is only known as the name of certain plants. On *kaŋkuṣṭha*, see Garbe's Indische Mineralien, p. 69, No. 141, foot-note.

[163] The text classifies caustics into (1) *saṁvyūhima* or 'weak,' which has no extra-ingredients (*prativāpa*) ; (2) *madhyama* or 'middling' which has the extra-ingredients consisting of paste of bonduc-nut, etc. ; (3) *pākya* or 'boiled,' *i.e.*, extra boiled with an additional set of extra-ingredients consisting of paste of Dantī, etc. BHĀ. quotes the following classification from Bhōja : "Caustics are divided into *saṁvyūhima* or 'weak' and *pākya* or 'boiled,' and the latter are again divided into *sa-prativāpa* or 'middling' (lit., 'with an extra-ingredient') and *tīkṣṇa* or 'strong.'" This is similar to the classification of Suçruta. But BHĀ. also refers to another system of preparation, according to which all three kinds of caustic solutions are made with extra-ingredients, and are distinguished from each other only by the quantities of the latter, these being 4, 8, and 16 parts respectively for the weak, middling, and strong solutions. Compare note 159.

[164] The commentaries explain that, after adding the fresh alkaline water, the mixture should be again boiled. A caustic may become ineffective either through lapse of time or through deficiency in ingredients.

it should have only a gentle flow,[165] and (in its action) it should be beneficial and quick. These are declared to be its eight good qualities. [11] On the other hand, its bad qualities are said to consist in its being too weak, too cool,[166] too hot, too strong, too soapy, too spreading, or too thick; also in its being underboiled, or deficient in ingredients. [12]

(5) Now when (the physician) goes to see a patient suffering from a disease curable by a caustic application, he should select (for the operation) a spacious place protected from draughts and the sun, and the conditions previously explained.[167] He should then, after having placed handy all his appliances, examine the patient's (diseased) part, rub it, scrape it, and scarify it, and then with a probe apply the caustic; and having done so, he should wait for the space of time required to utter one hundred words.[168] On the application of the caustic, the diseased part turns black, and this is the sign of its being (properly) burnt. When this occurs, (the application of) any acetic acid,[169] mixed with clarified butter and honey, will give relief. [14]

But if by reason of its being deeply imbedded, the burnt part does not (easily) come off, an ointment should be freely applied to it, [15] consisting of a paste made of equal parts of the sediment of *kāñjika* or 'fermented rice-water,' sesamum-seeds, and liquorice. [16] The granulation of the wound may be promoted by a paste made of sesamum seeds, liquorice and a little clarified butter. But how can the fire-like alkaline caustic be neutralised by applying to it the (fermented rice-water with its) equally fire-like, hot, pungent, acid taste? [17] If this is your difficulty, my son, then listen to my explanation. Know that in a caustic all tastes are present except the acid. [18] [170] It has an acrid sub-taste, but its prevalent taste is saline; when joined to an acid (substance), the caustic, with its pungent-saline taste, [19] turns very mild and relinquishes its pungent nature. Through its mildness its (burning) is neutralised, just as a fire, when drenched with water, (is extinguished). [20]

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[165] So that, on application, it does not spread unduly. So the commentaries.

[166] Nɪ. explains *çaitya* by *çuklatā*, 'too white,' but I am not aware that *çaitya* or *çīta* ever has that meaning. See, however, § 1 and verse [11].

[167] That is, he should select an auspicious moment of time, as explained in § 3 of the 5th chapter. So the commentaries.

[168] I have adopted Ḍallaṇa's recension of this passage, which is adopted in Gaŋgāprasād Sen's edition and runs as follows: *çalākayā kṣāraṁ pratisārayēd=dattvā vāk-çata-mātram=upēkṣēta.* Cakrapāṇidatta appears to have read *chittvā* for *dattvā* and to have omitted *upēkṣēta*, while the current edition (of Jīvānanda and Avinaça Candra) reads *pātayitvā* for *pratisārayēd=dattvā.* There is no practical difference in meaning.

[169] According to the commentaries the reference here is to any of the artificially prepared acetic acids, such as the sour gruels fermented from rice or barley or pulses infused in water. On these see *infra*, chap. 45, §§ [44–47].

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[170] In the original this is a rather puzzling passage, and perhaps the reading is corrupt. In my translation I have adopted a suggestion of Ḍallaṇa. Cakrapāṇidatta explains: "its prevalent taste is acrid, but it has a saline sub-taste." Ḍallaṇa points out that this cannot be correct: because 1, people take saline things to neutralise acidity in their food; 2, the caustics are treated in the division relating to saline things, but not in that relating to acrid things. A caustic, therefore, is in the main saline; and when in § 1 of this chapter a caustic is said to be acrid, it is only said to be so because a caustic is prepared with *agnēya* or 'heating' medicaments. Hence Ḍallaṇa proposes to construe *anurasa* with *kaṭuka*, and *bhūyiṣṭha* with *lavaṇa*. With the reading as it now stands, such a construction is impossible; that can only be translated: 'it is acrid, but it has a prevalent saline sub-taste'; but a sub-taste can hardly be said to be the prevalent one. Ḍallaṇa's contention, however, seems to me to be right; it agrees with Caraka, who, as Cakrapāṇidatta points out, says *kaṭur=lavaṇa-bhūyiṣṭhaḥ* (*kṣāraḥ*), i.e., 'a caustic is acrid, but in the main saline.' Perhaps the correct reading of the passage should be *kaṭukas=tatr=ānurasō lavaṇa-bhūyiṣṭhas=tathā* (though being an unusual form of çlōka).

Now when the burning (of the afflicted part) is done properly, the disease (for which it was applied) is cured, the system is relieved, and the discharge ceases. When the burning is done insufficiently, there is shooting pain, itching, and insensibility, and the disease increases. When the burning is done to excess, there is burning pain, suppuration, redness, (increased) discharge, pain in the limbs, sense of weariness, thirst, and fainting, and even death may result. The wound, caused by the (insufficient or excessive) burn of a caustic, should be treated according to the (nature of the) deranged humour and of the disease. [21]

(5) The following persons should not be treated with caustics:[171] weak people, children, old and timid people, those who suffer from general anasarca or (internal) hæmorrhage [see *ante* § 2], pregnant and menstruating women, people who are in an advanced stage of fever, who are weakened by phthisis, who are subject to fits of (morbid) thirst and fainting, or who are suffering from seminal exhaustion, or from the displacement downwards or upwards of the testicles or the uterus. [22] Caustics should not be applied to the vital parts, blood-vessels, nerves, joints, cartilages,[172] sutures,[173] *dhamanī*-vessels,[174] throat, navel, inside of the nails, penis, (excretory) canals, and parts thinly covered with flesh,[175] nor to the eyes with the exception of the diseases of the eyelids. [23] But even in the case of diseases curable by (the application of) caustics, these afford no cure to a patient who is subject to fits of anasarca, violent

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[171] Either internally, or externally, or both, according to circumstances. So the commentaries.

[172] *I.e.*, those of the nose, ear, nape, eye and forehead. So the commentaries.

[173] Of these there are seven: five on the cranium, one on the tongue, and one on the perinæum. So the commentaries.

[174] On these see below, chapter 9 of the Çarīra Sthāna or 3rd Section. There is nothing exactly equivalent to them in modern anatomy. See also *ante*, note 60.

[175] Such as the knee, the upper surface of the foot, the forehead, etc. So the commentaries.

pain in the bones, aversion to food, or pain in the heart and joints. [24] Here comes in (the following verse):—

> In the same manner as poison, fire, sharp weapons, and lightning, caustics, if applied by a careless physician, cause death. When applied properly by a careful physician, they quickly cure (many) serious diseases.

THE TWELFTH CHAPTER.

On the Mode of Applying the Actual Cautery. [1]

(1) With regard to surgical treatment, actual cautery is said to be superior to caustics,[176] inasmuch as diseases treated with the actual cautery do not re-appear, and because it can cure diseases which are incurable by medicines, instruments, and caustics. [2]

(2) The means for carrying out the actual cautery are the following: long pepper, goat's dung, orpiment, an arrow-head, or a wick; also oval-headed probes,[177] made of iron or other metals; further, honey, treacle, and the various kinds of oleaginous substances.[178] Of these, long pepper, goat's dung, orpiment, arrow-heads and wicks are used in the case of (diseases) affecting the skin; probes made of iron or other metals (such as copper, silver, etc.) in the case of (diseases) affecting the muscles; and honey, treacle, and oleaginous substances, in the case of (diseases) affecting the blood-vessels, nerves, joints and bones. [3] The actual cautery may be used in all seasons except the autumn and

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[176] The commentaries explain that though in chapter 11, § 1 caustics are said to be superior to all substitutes, including the actual cautery, there is no contradiction here. Each is superior from its own point of view: cautery with regard to effectiveness of treatment, caustics with regard to variety of application.

[177] The text has *jāmbauṣṭha* which is a probe with a head shaped like the oval fruit of the Jambu tree. So Bhā. See also *ante*, chap. 7, § 7.

[178] These are the following four: oil, clarified butter, fat, and marrow.

summer; and even in these (it may be used) if a rapidly fatal disease cannot be cured without it, provided that suitable precautions[179] are taken. [4] In all diseases and in all seasons the actual cautery should be performed on a patient only after he has been kept on a mucilaginous diet, but in the case of complex labour, stone in the bladder, fistula-in-ano, piles, and diseases of the mouth, (it should be performed on him) on an empty stomach. [5]

(4) Some say that there are (only) two kinds of cautery, namely that of the skin and that of the muscles; but here (in this treatise) there is no prohibition against the cauterization of blood-vessels, nerves, joints and bones.[180] [6] When the skin

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[179] The commentaries explain that this refers to cool cloths and diet, as suitable to those two hot months.

[180] According to BHĀ. and NI. the reference is to Kāçyapa from whom they quote the following verse: "under no circumstances should the irritating part be surgically removed from blood-vessels, nerves, joints and bones, or the potential or actual cautery be applied to those parts." Kāçyapa is one of the ancient Hindū physicians. He is quoted in the Bower Manuscript (see my edition, p. 170, verse 1020) and in the Aṣṭāŋga Hṛdaya (VI, 2, verse 43). A Kāçyapa Saṁhitā still exists and the above quotation is probably from that work. I have no means of verifying it. NI. tries to reconcile the discrepancy by saying that Suçruta here only means to say that the cautery should be used to stop the flow of blood, when a blood-vessel or nerve, etc., is divided, but not, that it should be used to cure any disease of those parts; for the latter object is practically included in the cauterization of the muscles, as a bye-product of it, according to the saying of Madaçaunaka: "along with the cauterization of the muscles diseases seated in the blood-vessels, nerves, bones and joints are also relieved." This harmonization, however, seems untenable in view of Suçruta's direction in § [8], that cautery should be applied to the blood-vessels, nerves, joints and bones, as well as to the skin and muscles, in the case of a painful inflammation caused by the deranged air of the body. The reconciliation suggested by BHĀ. has more probability. It says: "the use of the negative phrase "cautery is not prohibited," instead of the positive "cautery

is cauterized, the burning is attended with a (crackling) noise, bad smell, and contraction of the skin. When the muscles are cauterized, (the burnt part assumes) the colour of a grey pigeon, is slightly swollen and painful, and its wound is dry and contracted. When blood-vessels and nerves are cauterized, the wound appears black and elevated, and the discharge is stopped. When joints and bones are cauterized, the burnt part becomes rough and red, and the wound is hard and solid. [7] In headache and ophthalmia the eyebrows, forehead, and temples should be cauterized. In diseases of the eyelids, the roots of the eyelashes should be cauterized, after protecting the eye with a piece of wetted cotton cloth.[181] In very painful affections, caused by deranged air, of the skin, muscles, blood-vessels, nerves, joints, or bones, in sores forming hard and insensible protuberances,[182] in cystic tumours, piles, tumours, fistula-in-ano, enlarged lymphatic glands, elephantiasis, condyloma, black moles, scrotal enlargements, and injuries to joints and blood-vessels the actual cautery should be applied. [8]

(5) Now, there are (four) different ways of performing the

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is enjoined," shows that cautery is only intended to be used in the case of a rapidly fatal disease of the blood-vessels, etc." In any case, it may be noted that though Suçruta permits the use of the actual cautery, he prohibits the employment of the potential cautery, in the case of diseases of blood-vessels, nerves, etc.; see § 5 of the 11th chapter.

[181] The text has *alaktaka*, which Ni. explains simply by *karpaṭa* or 'piece of cotton cloth.' Dr. U. C. Dutt says it is "cotton coloured red with lac."

[182] Dr. U. C. Dutt, in his translation takes this and the preceding phrase to signify but one disorder: "when a painful inflammation is caused by deranged air on the skin, flesh, etc., and the inflamed part is hard, swollen and insensible." But a "painful inflammation" could not at the same time be "insensible." Clearly two distinct disorders are referred to. This is also seen from Cakrapāṇidatta's remark that *vraṇa* is to be taken *sāmānya* or 'in a general sense,' and therefore not with any particular reference to deranged air. The latter term seems to indicate a different disorder: painful rheumatic affection.

actual cautery: namely, in circles, points, lines, and areas.[183] [9] Here comes in (the following verse):—

> When he has examined the place and form of the disease, as well as the vital parts and the strength or weakness of the patient, only then the physician should decide on carefully performing the actual cautery. [10]

After the part is thoroughly cauterized, it should be dressed with honey and clarified butter.

(6) Now the actual cautery may not be performed on the following persons: those who are of a bilious temperament, who are subject to internal hæmorrhage or diarrhœa, and who have unextracted foreign substances in their body, weak people, children, old and timid people, also those who are suffering from numerous ulcerations,[184] and those who cannot be made to perspire.[185] [11]

(7) We shall now proceed to describe the symptoms of cauterization when improperly performed. Fire is made a means of cauterization by being introduced into some oleaginous or dry substance.[186] But an oleaginous substance, if well heated by fire, will, by following the minute vessels of the body, penetrate into its skin and its other parts, and rapidly cauterize them. Hence in cauterization by an oleaginous substance there is a

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[183] To suit the differences in the shape of the diseased part, as the commentaries explain. I follow the reading given in Gangāprasād Sēn's edition, which is also that of BHĀ. and NI. The latter, however, says that some add *rōg-ākṛtim=avēkṣya*, *i.e.*, 'with a view to the shape of the diseased part.' The reading of Vidyāsāgara's edition *rōg-adhisthāna-bhēdād=agnikarma caturdhā bhidyātē*, *i.e*, 'on account of the difference in the seats of the diseases the actual cautery is divided in four kinds,' is clearly a redundant interpolation.

[184] Text: *anēka-vraṇa-pīḍita.* BHĀ., however, reads *anēka-vyādhi-pīḍita*, *i.e.*, 'who suffer from various diseases,' that is, such diseases as are unsuitable for treatment by cautery, lest they be increased.

[185] *E.g.*, those who suffer from morbid pallor, morbid micturition, morbid thirst, hæmorrhage, etc. So the commentaries.

[186] *I.e.*, by strongly heating wood, stones, metals, etc., or, on the other hand, clarified butter, oil, etc.

greater amount of pain. [12] Now there are four grades of cauterization: scorching, deficient burning, proper burning, and over-burning. Scorching is that which merely results in a heavy discoloration (of the skin). Deficient burning is that where severe blisters arise with a sensation of drying up and burning up, combined with redness, suppuration, and pains, and take a long time to heal. Proper burning is that in which the burn is not too deep, coloured (yellow) like the (ripe) fruit of the Palmyra palm (*Borassus flabelliformis*), well-formed,[187] and furnished with all the characters previously [see § 4] described. Over-burning is that in which the flesh is pendulous, the body languid, the blood-vessels, nerves, joints and bones excessively injured, and fits of fever, burning sensation, thirst and fainting supervene; in which moreover the sore heals very slowly, and, even after healing, has an unhealthy colour. All these four kinds of cauterizations fulfill (for the physician) their own proper purpose.[188] [13] Here come in (the following verses):—

> Irritated by fire, the blood of living beings becomes greatly deranged; and its derangement quickly communicates itself to their bile. [14] For these two (substances) are like one another in regard to their (hot) power, their (bitter) taste and their (character as) elements (of the body). Hence severe pains arise: burning comes as a natural result (of the fire) [15]; blisters quickly spring up; and fever and thirst supervene.

(8) Now the treatment adapted to neutralise (the effects of) cauterisation is the following. [16] In the case of scorching, heat should be applied, and heating medicines administered, for, when the body copiously perspires, the blood becomes thin. [17] For cold water naturally thickens the blood. Hence heat gives relief, but never cold. [18] In the case of deficient burning, the physician should adopt both cold and hot treatments. Dressing with clarified butter and

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[187] *I.e.*, neither too much raised, nor too much depressed. So the commentaries.

[188] *I.e.*, they show him both what he should do, and what he must avoid. So the commentaries.

sprinkling with cold water should be resorted to by him. [19] In the case of proper burning a dressing made of (equal parts of) bamboo-manna, (bark of) Plakṣa (*Ficus Tjakela*), (red) sandal-wood, and Amṛta (*Tinospora cordifolia*), and greased with clarified butter, should be applied. [20] Also a plaster, made of the pounded flesh of animals living in villages, marshes or water,[189] may be applied. In fact, the treatment should be with enduringly heating medicines, the same as in the case of deep-seated abscesses caused by deranged bile. [21] In the case of over-burning all loose-hanging pieces of flesh should be removed, and a cooling treatment adopted by the physician; afterwards a plaster made of the grains of Çāli or 'cold-season-rice,' [22] or of the bark of Tindukī (*Diospyros Embryopteris*) or other trees with an astringent bark, mixed with clarified butter, should be applied; and the sore should be covered with leaves of Guḍūcī (*Tinospora cordifolia*) or of some water-plant. In fact, the physician should follow altogether the same treatment as in the case of erysipilas caused by deranged bile. [23] The following makes an excellent granulating agent for every kind of cauterized burns, namely a paste made of (equal parts of) wax, honey, (bark of) Lōdhra (*Symplocos racemosa*), resin of Sarja (*Shorea robusta*), madder, (red) sandalwood, and (leaves and root) of Mūrvā (*Sanseviera zeylanica*), powdered and boiled in clarified butter. [24] In cauterizations by (heated) oleaginous substances a dry method of treatment should preferentially be followed.

(9) We shall now proceed to describe the symptoms of suffocation by smoke. [25] (The patient) breathes and sneezes hard,[190] becomes distended with wind, and coughs; his eyes become burning and red; [26] his expirations are

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[189] Such as horses, etc., boars, buffaloes, etc.; turtles, etc. So Ni.

[190] The text has *kṣanti*, which Ni. explains by *hikkati* or 'he hiccoughs.' But the reference is to sneezing, as Dr. Dutt translates.

mixed with smoke; he can smell nothing else but smoke, nor can he recognize any tastes; his hearing also is impaired; [27] he is thirsty, hot and feverish; he sinks (under the treatment) and faints. Such is suffocation by smoke. Now hear its treatment. [28] The patient should be given clarified butter with the juice of sugarcane, or raisins with milk, or sugared water, or sweetened acid juices in order to cause him to vomit. [29] By vomiting the bowels are cleared, and the smell of the smoke disappears. By this treatment, the languor, sneezing, fever, [30] burning, fainting, thirst, flatulence, (difficulty of) breathing, and coughing are alleviated. The use of sweet, saline, acid and acrid gargles [31] restores the functions of the senses and revives (those of) the mind. Errhines, skilfully administered to the patient by the physician, [32] clear his sight and (relieve) his head and neck. A diet should be prescribed of articles which are not heating, easy of digestion, and oleaginous. [33] In cases of burns from hot winds or exposure to sun, a cooling treatment should always be adopted. Burns caused by exposure to icy cold or showery winds are alleviated by (the use of) heating and oleaginous substances. In the case, however, of a burn by lightening there is no chance of recovery.[191] [34]

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[191] The text has *atitējas*, lit. 'excessive burn,' which both Bhā. and Ni. explain to refer to lightening. Bhā. in its comment, however, adds that "if only slighty burnt by lightning (*manāg-dagdha*), the patient may recover," and Ni. supports this comment. This clearly let to the textual addition of verse [35], which is given in Jīvānanda's edition, and runs as follows: "but if the patient survives after being struck by lightening, he should be treated with oleaginous applications, washes and poultices." In Ḍallaṇa's time this addition already existed; but he says: "the commentaries (*nibandha*) do not acknowledge it. Cakrapāṇidatta did not read it in his text; and in Gaŋgāprasād Sēn's edition it is omitted. Instead of the usual recension *çīta-varṣ-ānilair* 'cold and showery winds,' I read, with Cakrapāṇidatta, *hima-varṣ-ānilair* 'icy cold and showery winds.' Ḍallaṇa who reads *çīta* explains it by the popular saying: "that *hima* or icy-cold burns like heat."

THE THIRTEENTH CHAPTER.

On the Application of Leeches.[192]

(1) Leeches may be said to be the mildest of all means for extracting blood, well adapted for princes, rich persons, children, old, timid and weak people, women, and delicate persons. [2]

(2) Blood deranged by air, bile, or phlegm may be extracted by horns, leeches, and gourds respectively, or any kind of deranged blood (may be extracted) by any (of the three); but if blood is to be extracted profusely, the horn, leech and gourd should be employed (in the order mentioned).[193] [3] Here come in (the following verses):—

> The horns of cows are said to be heating, mild and unctuous;[194] hence they are the proper (instrument) for extracting blood in diseases caused by deranged air. [4] Leeches are born in water, have a cold exterior and are mild;[195] hence they are proper (to be used) for extracting

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[192] The commentaries explain that this chapter really treats of the various 'accessory instruments' for extracting blood. Of these leeches are the mildest, then come horns and gourds, and finally scarification and venesection, the last two being not 'mild' at all.

[193] I have adopted the reading of the text of Ḍallaṇa and Cakrapāṇidatta. It is also given in the edition of Gaŋgāprasād Sēn. According to Ḍallaṇa the concluding sentence was rejected by some commentators, including Jaijhaṭa. It is also omitted in the editions of Jīvānanda and Avināça Candra. On the other hand, Jīvānanda's edition interpolates, after the first sentence, the words "by reason of their unctuous, cooling, and dry natures," which Ḍallaṇa says are rejected by all commentators, and they undoubtedly seem to be superfluous, seeing that their purport is stated in the succeeding verses [4–6].

[194] Bhā. reads *çlakṣṇaṁ* 'smooth' for *uṣṇaṁ* 'heating.'

[195] Text *vāri-sambhava* 'born in water,' to distinguish them from *tṛṇa-jalaukā*, lit., 'grass-leech,' *i.e.*, a caterpillar. So Bhā. *Çīt-ādhivāsā* is explained by Ni. as *çīta-gṛhā* or 'living in cold places,' but by Bhā. as *çīta-sambaddhā*, which I have adopted. *Madhurā* is explained by Bhā. as 'mild in application.'

blood in diseases caused by deranged bile. [5] Gourds are said to be acrid, dry and pungent; hence they are the proper (instruments) for extracting blood in diseases caused by deranged phlegm.[196] [6]

Now in cupping, the blood should be extracted by means of a horn to which a small bladder is tied as a cover, after sucking it;[197] or by means of a gourd in the inside of which a burning wick is placed. [7]

(3) The leeches are called *jal-āyuka* because *jala* or 'water' is their *āyuḥ* or 'food;' and they are called *jal-aukasa* because water is their *ōkas* or 'dwelling place.' They are of twelve kinds: six of these are poisonous and just as many are non-poisonous.[198] The poisonous ones are (the following): *Kṛṣṇā, Karvurā, Alagardā, Indrāyudhā, Sāmudrikā* and *Gōcandanā*. Among these the *Kṛṣṇā* or 'black one' is of the colour of (black) collyrium and has a broad head. The *Karvara* or 'variegated one' is as

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[196] According to Gaŋgāprasād Sēn, his Bombay copy adds here the following verse: *alāvv=aṣṭāŋgulaṁ vidyāt çṛŋgan=tu dvādaçāŋgulam, jalaukā ca harēd=raktaṁ çītā sarva-gataṁ nṛṇām* ‖ *i.e.*, 'the gourd should be of the size of 8 aŋgula, and the horn, of 12; the cold leech draws the blood of men from any part.' Ḍallaṇa refers to this verse, though he does not quote it. But he quotes the following from an unnamed authority: 'the horn should be that of a white cow and should be of the size of seven aŋgula, and shaped like the disk of the moon; at the top there should be a hole of the size of a pea.' According to him, the gourd should measure 8 aŋgula (6 inches) in circumference, and 4 aŋgula (3 inches) in size. Cakrapāṇidatta's measures are: the horn should be 3 aŋgula, and its hole should be of the size of the stalk of an oleander flower. His measure for the gourd is not fully given.

[197] The sucking, of course, creates a vacuum in the horn; so does the burning of the wick in the gourd. I read, with BHĀ. and NI., *vasti* or 'bladder.' Another reading, also mentioned by NI. and given in Jīvānanda's edition has *vastra* or 'piece of cloth.'

[198] The commentaries state, that according to another text-book (*tantra*), not named by them, the poisonous leeches are of eight kinds.

long as an eel,[199] and has an abdomen, in some places raised, in others depressed.[200] The *Alagardā* looks as if covered with hair, has large sides and a black mouth. The *Indrāyudhā* or 'rainbow' is adorned with (longitudinal) lines on its back, of the colours of the rainbow. The *Sāmudrikā* or 'the stamped one' is of a slightly whitish-yellow colour and marked with flower-like spots of various forms. The *Gōcandanā* has a bifurcated tail resembling the scrotum of a bull, and a small mouth. If any person is bitten by these, their bite produces swelling and excessive itching of the part, and fainting, fever, heat, vomiting, delirium, and general collapse supervene. In such a case the *Mahāgada*[201] or 'Great Antidote' should be administered in the form of a potion or an ointment or an errhine or in any other form. The bite of an *Indrāyudhā* is incurable. So far the poisonous leeches and the treatment (of their bite) have been described. [8] Now the non-poisonous leeches are the following: *Kapilā, Piŋgalā, Çaŋku-mukhī, Mūṣikā, Puṇḍarīka-mukhī, Sāvarikā*. Among these the *Kapilā* or 'the greenish one' has its two sides of the colour of orpiment, and on its back it is smooth and of the colour of a (green) pea.[202] The *Piŋgalā* or 'tawny one' is of a reddish-brown colour and a round body and moves quickly. The *Çaŋku-mukhī* is (bluish-red) of the colour of liver, sucks quickly, and has a long sharp mouth. The *Mūṣikā* or 'rat-like one' has the shape and colour of a rat's (tail)[203] and is of a disagreeable smell. The *Puṇḍarīka-mukhī* or 'lotus-faced one' is of the colour of a (green) pea,[202] and has a mouth like the lotus. The *Sāvarikā* is slimy, (green-)coloured like a lotus-leaf, and eight aŋgulas (or 6 inches) in length; it is only fit for extracting blood from animals. Such is the description of the non-poisonous (leeches). The countries in which they occur are the Yavana, Pāṇḍya, Sahya, Pautana and others.[204] The leeches found in these countries are large-bodied, and strong, suck (blood) quickly and eat much, and are specially free from poison. Those leeches which are produced in dirty water and from the decomposition of poisonous fishes, insects, frogs, urine, and fœces are poisonous. Those which are produced in pure water and from the decomposition of the various kinds of lotus, called *Padma, Utpala, Nalīna, Kumuda, Saugandhika, Kuvalaya, Puṇḍarīka,*[205] and of *Çaivāla*

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[199] The original has *varmi-matsya* or 'Varmi fish.' The Hindū medical dictionaries explain it as a "kind of river fish," and say that in the vernaculars it is called *vāṇi* or *vāni* or *vāin* or *vāṅ* (Baŋgālī) and *bāmbī* or *bām* (Hindī). This is the name of the eel. The Petersburg Dictionary does not identify it. Nɪ says that it is "like a snake," but it adds that some identify it with the Rōhita fish, which is a kind of carp. The comparison with an eel would indicate a rather long species of leech.

[200] *I.e.*, probably, as Dr. U. C. Dutt paraphrases it, "it has elevated stripes across its abdomen"; but not, as Dr. Wise puts it in his Hindu System of Medicine, p. 177, that "it moves irregularly."

[201] This antidote will be found described *infra*, in verses [59-61] of chapter V of the Kalpasthāna (or 5th Section).

[202] *Kapilā* is somewhat puzzling. It cannot have here the usual meaning of 'brown' or 'tawny,' because the commentaries explain the following *piŋgalā* by *kapilā*. Of Mudga (*Phaseolus*

Mungo) there are two kinds: green and yellow. Cakrapāṇidatta says that the *harita-mudga* or 'green pea' is intended; and *harita* is also a synonym of *kapila*. The latter is an undecided colour.

[203] So BHĀ.: it is like the tail of a rat on account of its length.

[204] According to Ḍallaṇa, by *Yauvana* is meant the country of the *Turuṣka* (*i.e.*, the trans-Indus country); by *Pāṇḍya*, the Dekkan or Southern India, by *Sahya*, the country about the Narbadā or Central India, and by *Pautana*, the country about Mathurā or Western India. Both Ḍallaṇa and Cakrapāṇidatta state that some commentators reject this passage; but in that case they would have to read, in the following sentence, *tāsu* instead of *tēṣu*, in order to make it applicable to the feminine *jalaukā*, 'a leech.' The neuter *tēṣu* refers to *kṣētrāṇi* and clearly presupposes the existence of the passage in question.

[205] All these are different varieties of *Nelumbium speciosum* and *Nymphaea lotus*. According to Ḍallaṇa, "*Padma* is whitish, and *Puṇḍarīka*, very white; *Nalīna* is reddish and *Kuvalaya*, red; *Utpala* is bluish; *Saugandhika* is very sweet-scented and opens in moonlight; *Kumuda* is the well-known vernacular *Kuiyā* or *Kōī*." The two last-mentioned are white varieties.

(*Blyxa Octandra*) are non-poisonous. [9] Here comes in (the following verse) :—

> These beneficial (leeches) have their habitat in meadows and fresh waters; they do not live in confined places, nor do they lie in quagmires. [10]

As to the means of securing them, they may be caught with (a piece of) wet leather, or with some other (suitable) article.[206] They should then be kept in a new large earthen pot, filled with mud and water from a pond or lake. For food, they should be given of the green fungi growing on stagnant water, dried meat, and powdered tubers of aquatic plants; and for bedding, grasses and leaves of water-plants. Every second or third day, fresh water and food should be given, and every week the earthen pot should be changed. [11] Here comes in (the following verse) :—

> Leeches the middle of which is thick, or which are exhausted, or are expanded, or which move slowly, or do not fix, or suck little, or which are poisonous, should not be selected (for use). [12]

(4) When about to apply a leech to a person who has got a disease curable by them, the patient should be made to lie down, and the (affected) part, if free from ulcers,[207] should be rubbed dry with powdered cowdung and earth. Then having taken hold of the leech, and irritated its body with (a mixture of) turmeric and mustard rubbed into a paste with water, it should be placed, for a little while, in a cup of water; till its dullness is seen to have passed off;[208] and then it may be applied to the

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[206] *E.g.*, a piece of freshly killed meat, or one's leg smeared with butter, or milk, etc. So the commentaries.

[207] Because, otherwise, by rubbing the ulcers the disease will be increased; or else it sucks the ulcer, attracted by the wet and smell of the blood. So the commentaries.

[208] The usual text has *vigata-klama* 'freed from dulness'; but Cakrapāṇidatta reads *vigata-mala* which he explains by *apagata-vāhya-mala*, 'freed from external impurities.' Both readings make good sense. The leeches are smeared with the paste to excite them, and they are put in water to clean them again from the paste, before applying them.

diseased part, covering it with a fine white wet piece of cotton-cloth, but so as to leave its mouth free. If it does not fix quickly, a drop of milk or a drop of blood may be applied to, or a small incision may be made (in the deceased part). If even then it does not fix, another should be applied. When it fastens on (the part), a leech raises its shoulder and bends its head like a horse-shoe, then it may be known to be sucking; and while it is thus sucking, it should be covered up with a wet cloth. If in the bitten part itching or pain is felt, it is a sign that the leech is drawing pure blood; and such a leech should be removed. If on account of its scenting the blood,[209] it will not let go, it should be bestrewed with powdered rock-salt. When it now falls off, its body should be irritated with powdered rice and its mouth smeared with oil and salt; then taking hold of it by its tail with two fingers of the left hand, its body should be slowly and gradually pressed with the thumb and index-finger of the right hand, (from the tail) towards the head, and thus it should be made to vomit, until it is thoroughly emptied. When it is thoroughly emptied and placed in a cup of water, it goes about in it in search of food. If it sinks (to the bottom) and does not move about, it is not quite emptied, and should again be made to vomit till it is thoroughly empty. A leech which has been insufficiently emptied, is attacked with an incurable disease called *Indramada*.[210] A leech which has been completely emptied should be replaced, as before explained, (in the earthen vessel). According as the (quantity of) blood (drawn) is proper or improper, the leech-bites should either (in the former case) be rubbed with honey, or sprinkled with cold water and bandaged, or (in the latter case) the wound may be also poulticed with cooling poultices made of astringent or sweet drugs mixed with clarified butter.[211] [13] Here comes in (the following verse) :—

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[209] The usual reading is *çōṇita-gandhēna* 'by the smelling of blood,' but according to Ḍallaṇa some substitute *çōṇita-gardhēna* 'through greed for blood,' on the ground that leeches have got no sense of smell.

[210] According to the commentaries some reject this passage, on the ground that the nature of the *Indramada* disease is not explained in any medical text-book. Cakrapāṇidatta himself would seem to have been in favour of rejecting it.

> Whoso knows (all about) the leeches, their habitat, the mode of catching them, their varieties, and the manner of keeping and applying them, he is able to overcome all diseases curable by them. [14]

THE FOURTEENTH CHAPTER.

Description of the Blood. [1]

(1) Food, which is derived from the five (primary) elements, is of four kinds, and possesses six tastes, two or (according to others) eight sensific powers, and many other qualities,[212] yields, if

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[211] This is the interpretation given by some commentators, according to Ḍallaṇa and Cakrapāṇidatta. It is also adopted by Dr. U. C. Dutt, though in a slightly and incorrectly modified form. It seems to me to be the only admissible one : two alternative blood-effusions are mentioned, and the treatment adapted to each. Ḍallaṇa and Cakrapāṇidatta themselves, however, prefer another interpretation with a fourfold division. According to them *ayōga* is of three kinds : *hīna*, *ati* and *mithyā*. Rubbing with honey is intended for *hīna-yōga* or 'insufficient extraction,' sprinkling with water and bandaging for *atiyōga* or 'excessive extraction,' and dressing with poultices for *mithyā-yōga* or 'imperfect extraction' (*i.e.*, when impure blood is left in the wound). This interpretation, however, leaves no treatment indicated for *yōga* or 'proper extraction.' Hence those commentators add, out of their own head, that it should be treated by *dhauta-ghṛt-ābhyaŋga*, *i.e.*, 'dressing with well-washed clarified butter.'

[212] On the five (primary) elements see notes 16 and 30. The four kinds of food are those which must be drunk (*pēya*), licked (*lēhya*), swallowed (*açita* or *bhōjya*), and masticated (*bhakṣya* or *khādita*). On the tastes, sensific powers, and other qualities, see *infra*, chapters 40–42. By the other qualities are especially meant those of light (*laghu*) and heavy (*guru*) digestion ; so Bhā. Altogether twenty *guṇa* or 'qualities' are counted.

it is suitably taken and thoroughly digested, its clarified[213] essence (as a fluid substance) of very great fineness, which is called *rasa* or 'chyle.' The seat (of this chyle) is the heart, which is purified thereby.[214] Then proceeding from the heart, through the twenty-four *dhamani*-vessels, ten ascending, ten descending, and four transverse, it, day by day, satiates the whole body, increasing, maintaining, and strengthening it, by some mysterious manner of action.[215] From the fact that it pervades the whole body it can be further inferred that its condition is liable to the ills of deficiency and excess.[216] Seeing that this chyle pervades the whole body, its limbs, humours, constituent parts,[217] secretions, and receptacles,[218] the question arises,[219] is this substance

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[213] The term *tējōbhūta* is explained in three different ways. Cakrapāṇidatta says it means 'pure' (*nirmala* or *prasanna*), and he quotes Caraka in support. But he allows the optional meaning *ghṛta-vad=utpanna* 'produced like clarified butter from butter,' *tējas* being a synonym of *ghṛta*. Ḍallaṇa also allows the latter; but he prefers the meaning *vahni-sambhūta* or 'produced by fire' (*i.e.*, the digestive fire).

[214] The heart is also said to be the seat of *ōjas* or 'vital force.' Hence Ḍallaṇa says that here by 'heart' is to be understood not the heart itself but its region, while Cakrapāṇidatta says that the seat of blood is that portion of the heart which is not occupied by *ōjas* as its seat. On *ōjas* see the next chapter. I read, with BHĀ., *yach=chhuddhaṁ* after *sthānaṁ*.

[215] The terms 'increasing,' 'maintaining' (*dhārayati* or as some read *jīvayati*), and 'strengthening' refer respectively to youth, middle age, and old age. So the commentaries.

[216] I.e., *rasa* or 'chyle' pervades the whole body, seeing that, being healthy (*tējōbhūta*) itself, it keeps the body in a healthy state (*tējas*), as explained in the preceding passage. But the body is not always healthy; it is subject to diseases; hence it follows that the *rasa* itself must be subject to ills. This seems to me the correct construction of the passage, and its obvious meaning as intended by Suçruta. The commentators, however, give an entirely different construction and interpretation of it. They construe thus: *tasya anusaratō gatir=anumānād=upalakṣitavyā kṣaya-vṛddhi-vaikṛtaiḥ*; and interpret thus: 'The fact of the chyle pervading the body can be inferred from its ills of deficiency and excess (and the consequent diseases of the body).' But why should the latter be a

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proof of the prevalence of the chyle throughout the body, any more or any better than the health of the body? In fact this proof is already given by Suçruta in the preceding passage: it is the health of the body which proves that the chyle which is also a healthy substance pervades the body. But there remains a difficulty which Suçruta had clearly to answer. If the prevalence of the healthy chyle makes the body healthy, how are the diseases of the body to be accounted for? The answer is: that the chyle, though essentially a healthy substance, is subject to deficiency or excess. Moreover the very term *upalakṣitavyā* indicates that some additional mark of the chyle is referred to; its health is previously spoken of, now its drawbacks are noted. Ḍallaṇa evidently felt this difficulty, for he suggests that *ca* 'and' must be understood (*draṣṭavya*) with *kṣayā-vṛddhi-vaikṛtaiḥ*. But this would be not only a gratuitous addition, but the awkwardness of his construction of *anumānāt* still remains. The diseases of the body consequent on the ills of the chyle are exemplified by Ḍallaṇa thus: deficiency of chyle causes pains and palpitation of the heart, etc., excess of it, languor of the heart, etc.—It may be also noted, that all modern editions read: *çarīram=anudhāvatō* or 'flowing through the body,' while both Ḍallaṇa and Cakrapāṇidatta read *çarīram=anusaratō*. This is clearly the older reading which I have adopted. It may mean the same as *anudhāvatō* 'flowing' or 'moving,' but not necessarily; it may also simply mean 'pervading' (as, as a matter of fact, it does mean in the immediately following passage), and in the original context of Suçruta, as I have adopted it from Cakrapāṇidatta, neither he nor Suçruta can have meant anything else by it. The whole context only further proves the well-known fact, that in Cakrapāṇidatta's time and before it the circulation of blood (*i.e.*, chyle reddened) was not yet known. The substitution, in the context, of the explicit term *anudhāvatō* would seem to have been a resultant of the spread of that knowledge into India.

[217] The *dhātu* or 'constituent parts' (or secondary elements) of the body are seven; see below § [6], and *ante*, footnote 30.

[218] On these parts of the body see the 5th chapter of the Çarīrasthāna (or 3rd Section), also the next paragraph of the present chapter. Secretions include both excreta and secreta.

[219] That question arises in this way: of the parts of the body

a cooling or a heating one. The answer is this: chyle is indeed an all-pervading substance,[220] but from the fact of its being a lubricating, vitalizing, nourishing, and preserving agent, it may be concluded to be a cooling one.

(2) Now this chyle, though originally a watery fluid, assumes a red colour by contact with (the bile situated in) the liver and spleen. [1] There are also (the following two verses):—

> Now this watery fluid, which (in itself) is devoid of any colour, is reddened through the heating power (of the bile) present in the body of corporeal beings in a healthy state, and it is hence called *rakta* or 'blood' (lit. the red substance). [2] From this same chyle also the so-called *rajas* or 'menstrual blood' of women is derived; this blood begins to appear at the age of twelve and comes to an end at the age of fifty.[221] [3]

That the menstrual blood, however, has the property of heat may be seen from the fact that the womb has both the properties of heat and cold.[222] Other (medical) authorities add that the blood of living beings is (ultimately) composed of the five elements; [4]

> for (they say) the smell of raw meat, liquidity, red colour, tendency to ooze, and lightness, which are the

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some are cold, as phlegm, others are hot, as bile; but chyle pervades all; is it, then, cold or hot? So the commentaries.

[220] I read only *anusārī* with Nɪ. and Bʜᴀ̄. The reading *dravānusārī*, lit. 'flowing pervader,' is an emendation due to the same cause as the reading *anudhāvatō*, see note 216.

[221] For the third verse, Ḍallaṇa mentions the following curious reading, unknown to Cakrapāṇidatta: *rasād=ēva rajas=strīṇāṁ māsi māsí try-ahaṁ dravēt* । *tad=varṣād=dvādaçād=ūrdhvaṁ yāvat=pañcāsataṁ samāḥ* ॥ *i.e.*, 'from this same chyle flows the menstrual blood of women, month by month, for three days, beginning from the age of twelve up to that fifty years.'

[222] The meaning is this: it is well-known that the womb, into which both the semen and the menstrual blood enter, possesses both the hot and cold properties. Now the semen is cold, and accounts for the cold property of the womb. It follows hence

five qualities of earth and the other (four elements respectively), are also observable in the blood. [5] (Further,) blood being produced from chyle, flesh is next produced from blood, fat from flesh, bones from fat, marrow from bones, and (lastly) semen from marrow. [6] Thus chyle, being itself the essence of food and drink, nourishes these (other six) *dhātu* or 'constituent parts of the body.'[223] [7]

(3) Now the root *ras* means 'to go'; and the *dhātu* or 'constituent part' *rasa* or 'chyle' is called so, because it moves continually. But it stays in each of the (other six) constituent parts (of the body) for the space of three thousand and fifteen kalā. Hence it takes the chyle one month to turn into semen, or, in the case of women, into menstrual blood.[224] [9] Hereon comes in (the following verse) :—

> Hence the total period is stated, in this (*i.e.*, the author's own) as well as in other text-books, to be eighteen thousand and ninety (18090) kalā. [10]

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that the menstrual blood must be hot, in order to account for the hot quality of the womb. The ordinary blood is neither hot nor cold, for it is the joint product from the cold chyle and the heating bile, see §§ [1, 2]. So Cakrapāṇidatta; but Ḍallaṇa, who reads *ārthavaṁ çōṇitañ=ca*, *i.e.*, 'the menstrual blood as well as the ordinary blood,' holds that both kinds of blood are hot, the heat of the ordinary blood being inevitably involved in that of the menstrual blood.

[223] Jīvānanda's edition here inserts the following verse [8]: "hence one should remember that man is the product of chyle, and, as a prudent man, preserve the chyle by careful attention to food and drink and ways of living." Neither Ḍallaṇa nor Cakrāpaṇidatta had it in their copies of Suçruta.

[224] See *ante*, footnote 84. The calculation, according to Bhā, is as follows: 30 *kāṣṭā* make one *kalā*; 20 *kalā* and 3 *kāṣṭā* (or $20\frac{1}{10}$ *kalā*) make one *muhūrtta*; and 30 *mahūrtṭa* make one *ahōrātrā* or 'day of 24 hours.' Accordingly ($20\frac{1}{10} \times 30$ or) 603 *kalā* make one day. Now chyle takes 5 days or (603×5 or) 3015 *kalā* for each of its six successive transmutations (into blood, flesh, fat, bones, marrow, and semen or ova in the menstrual blood). Accord-

This chyle pervades the whole body by a very subtle process, after the manner of the diffusion of sound, light and water.

(4) Aphrodisiac medicines, when administered, act like (other) secretory agents,[225] and cause, by dint of their own power and properties, the rapid secretion of semen. [11] Just as with regard to the bud of a flower one cannot say that there is any scent, nor that there is no scent; yet, considering that the true state of things is not yet perceptible, (it must be so that) there is scent; only, on account of its slightness, it cannot be perceived, but after a time, with the expansion of the petals and stamens, the scent is clearly perceived. Even so, with the advance of age, the semen of boys makes its appearance; so do the lines of hair (on the body) and the other signs of puberty, as

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ingly it takes one month or (3015 × 6 or) 18090 *kalā* (see § [10]) for the entire series of transmutations. One *kalā* = 2 minutes and $23\frac{57}{201}$ seconds; accordingly 3015 *kalā* = 5 days. Bhā. mentions, however, also another theory. According to it, the period of transmutation varies: 6 days or 12 days or one month, according to the state of the digestion. Bhā. further suggests: that this variation is intended to be expressed by the comparison of the process of transmutation to the diffusion of sound, light and water (see § [11]). These three things move with different degrees of velocity, and thus indicate three different degrees of rapidity of digestion. Light is most rapid and signifies *tīkṣṇa* or 'brisk' digestion; sound is less rapid and signifies *madhya* or 'middling' digestion; water is the slowest and signifies *manda* or 'slow' digestion. Ni. objects to this interpretation as untenable, saying that sound, light and water signify the transverse, upward and downward transmission of the chyle through the body. Neither interpretation, however, is probable; the comparison with sound, light and water seems to me only intended to convey the same idea as the phrase 'by some mysterions manner of action' in § 1, p. 88.—By *ārttava* is here meant *strīṇāṁ çukra* or 'the semen of women,' *i.e.*, ova as excreted with the menstrual blood. So the commentaries.

[225] The original has *virēcana*, which is the usual term for purgatives, but in *çirō-virēcana* the word is used in its more general sense of a secretory agent.

well as menstruation and the other marks of womanhood; and with the development of menstruation, an enlargement of the breasts, the womb, and the genitals takes place. Similarly, by reason of the body decaying through old age, chyle ceases to be a fostering agent for old people.

(5) The above-mentioned [§ [6]] (seven) *dhātu* or 'constituent parts of the body' are called so because they make up the constitution of the body. Their growth and decay depends upon the blood. Hence we will now expound the subject of the blood. [12] When it is vitiated by air, blood is frothy, tawny, dark, thin, flows quickly and is indisposed to thicken.[226] When it is vitiated by bile, it looks blue, yellow, green, and livid, smells like raw flesh, is not affected by ants and flies, and is indisposed to thicken. When it is vitiated by phlegm, it looks (pale) like a solution of red ochre, is oily, cool, thick, sticky, flows slowly and has the appearance of muscles. When it is vitiated by all three humours in combination, it has all the (above-mentioned) marks, and in addition it looks like *kāñjikā* or 'fermented rice-water' and has a foul smell.[227] When the blood is vitiated by any two humours at one time, it has the mixed characters (of blood deranged by those two humours).[228] [13] When blood is in its natural (healthy) condition, it may be known from the fact of its showing the red colour of the cochineal insect, and of its being not thick nor in any way discoloured.

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[226] The original has *askandi*, which Bhā. explains by *asaṁhata* or 'not thickened,' and Ni. by *styānatva-rahita* or 'without thickness.' Dr. U. C. Dutt translates it "dries slowly," and Dr. Wise has "draws slowly," which practically express the idea.

[227] Here Jīvānanda's edition inserts: "when the blood (of one part) is vitiated by the vitiated blood (of another part), it has the same marks as blood vitiated by bile and, in addition, is very black." Both Bhā. and Ni. notice this reading, but do not approve it.

[228] Jīvānanda's edition here inserts: "of the blood of living beings we will speak elsewhere." Bhā. knows nothing of this reading. Ni. notices it only to reject it. It does certainly seem to be out of place.

(6) Diseases which require blood-letting will be described elsewhere.[229] Cases in which blood should not be extracted are swelling due to general anasarca or, in the case of a wasted male,[230] to the eating of acids, and inflammatory swellings connected with morbid pallor, piles, abdominal enlargement, consumption, and pregnancy. [14].

(7) There are two modes of extracting blood by means of *çastra* or 'cutting instruments' [see Chapter viii] : scarification and venesection. In making these, the instrument should be inserted with a quick movement and so as to avoid injuring any vital part, blood-vessel, nerve and joint, and the punctures (thus made) should be straight downwards, not too close together, very fine, in a straight line, not too deep, nor too superficial.[231] When the operation is badly done, or done on an inauspicious or on a cold and rainy day, on a patient whose perspiration is checked (by the chill) or who has not had his meal, the blood, by reason of being thick, does not come out freely or does not come out at all. [15] Here comes in (the following verse) :—

> In the case of persons who are suffering from intoxication, fainting, or fatigue, or are troubled with retention of urine, fæces and wind, or are overcome with sleep, or are timid, the blood does not flow freely. [16]

Vitiated blood, when it remains unextracted, causes itching, swelling, redness, burning, suppuration, and pain. On a hot day, when a patient perspires much, or if the puncturing is overdone by an ignorant operator, the flow of blood becomes excessive. From such a discharge severe pains in the head, dimness of sight, ophthalmia, cataract, wasting of tissues, convulsions, hemiplegia, paralysis of a single limb, morbid thirst, burning, hiccough, cough, asthma, anæmia, and even death ensue. [17] Here come in (the following verses) :—

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[229] *I.e.*, in Chapter xxv, on the Eight Kinds of Surgical Operations. So the commentaries.

[230] The original has *kṣīṇasya*, which might have a more general meaning; but Nɪ. qualifies it with *puṁsaḥ*, 'of a male,' which seems to refer the word to 'wasted virility.'

[231] These directions refer to both scarification and venesection; so Bʜā.; but Nɪ. appears to refer them only to scarification, and this view has been adopted by Dr. U. C. Dutt. But Bʜā. is undoubtedly correct. Bʜā. explains that blood-letting by means of *anuçastra* or 'accessory cutting instruments' having been described in chapter xiii, now blood-letting by *çastra* or 'cutting instruments' is described. It further refers to Chapter viii, § 3 with respect to the mode of holding the instrument (*e.g.*, the *kuṭhārikā*).

> Hence the physician should not extract blood either on a cold or a very hot day, nor from a patient who is either chilled or very heated, and he should operate on him after having given him repeatedly some gruel.[232] [18] When, after flowing (some time), the blood shows a proper red colour and stops of its own accord, then the physician may know that the blood is purified and that the bleeding has been properly done. [19] (Further) symptoms of a bleeding properly performed are (a feeling of) lightness, relief of pain, a check to the progress of the disease, and cheerfulness of mind. [20] Those who are in the habit of having their blood extracted periodically are never subject to skin-diseases, varicose enlargements, swellings, and (other) diseases due to (disordered) blood.[233] [21]

(8) If the blood does not flow freely, any three or four of the under-mentioned ingredients, or all of them together, just as they may be available, should be reduced to powder, worked up into a paste with mustard-oil and salt,[234] and rubbed on the

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[232] This according to NI., should be *tila-yavāgū* or 'gruel made of sesamum seed;' or according to BHĀ., *tila-taṇḍula-yavāgū* or 'gruel of sesamum and rice.' But NI. adds that according to others *virala-dravā* is intended, which is a gruel of any grain made with clarified butter. According to the commentaries the patient should have two or three meals of gruel, before being bled. The object of this is to warm up his system and thus induce the flow of blood.

[233] Such as deep-seated abscesses, erysipilas, etc. So NI.

[234] NI. reads here *lavaṇa-taila-pragāḍhair*, i.e., 'made into a paste with salt and sesamum-oil.' The reading of BHĀ. is not apparent.

scarified part, whereupon the blood will flow freely :—

Ēlā	*Elettaria Cardamomum* (cardamoms).
Çīta-çiva	*Cinnamomum Camphora* (camphor).
Kuṣṭha	*Saussurea Lappa.*
Tagara	*Tabernæmontana coronaria.*
Pāṭhā	(Roots of) *Stephania hernandifolia.*
Bhadra-dāru	*Cedrus Deodara* (deodar).
Viḍaŋga	*Embelia Ribes* (baberang).
Citraka	*Plumbago zeylanica* (plumbago-root).
Tri-kaṭuka	The three acrids, ginger, long pepper and black pepper.
Āgāra-dhūma	Soot.
Haridrā	*Curcuma longa* (turmeric).
Ārk-āŋkura	Shoots of *Calotropis gigantea.*
Naktamālā-phala.	Seeds of *Pongamia glabra.*

(9) If the blood flows too freely powders of the under-mentioned drugs should be sprinkled slowly over the scarified part and pressed into it with the point of a finger :—

Rōdhra	*Symplocos racemosa.*
Madhuka	*Glycyrrhiza glabra* (liquorice).
Priyaŋgu	*Aglaia Roxburghiana.*
Pattaŋga	*Caesalpinia Sappan.*[235]
Gairika	Red ochre.
Sarja-rasa	Resin of *Shorea robusta.*
Rasāñjana	Extract of *Berberis asiatica.*
Çālmalī-puṣpa	Flowers of *Bombax malabaricum.*
Çaŋkha	Conch-shell.
Çukti	Bivalve-shell.

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[235] NI. describes this as *rakta-candana* or 'red sandal,' which would be *Pterocarpus santalinus.* BHĀ. describes it as *ku-candana* or 'inferior sandal,' which is probably the Sappan-wood. This wood is whitish when freshly cut, but becomes red from exposure to air. It is by some Sanskrit writers included among the different kinds of sandal-wood, and is described as being of use to heal wounds and stop hæmorrhage. See Pharmacographia Indica, Vol. I, page 500.

Māṣa	*Phaseolus Roxburghii.*
Yava	Barley.
Gōdhūma	Wheat.

Or powders of the following drugs may be taken :—

Sāla and Sarja	Two varieties of *Shorea robusta.*[236]
Arjuna	*Terminalia Arjuna.*
Arimēda	*Acacia Farnesiana.*
Mēṣaçṛŋga	*Gymnema sylvestre.*
Dhava	*Anogeissus latifolia.*[237]
Dhanvana	*Grewia tiliæfolia.*
Tvaca	Cinnamon-bark.

Or one may take for the purpose (the ashes) of burnt linen, or powders of cuttle-fish bone or of lac. This done, the wound should be firmly tied with (linen or woolen) bandages as prescribed [in Chapter xviii]. The patient should, then, be covered with cool clothes, given cooling food, and kept in a cool room; he should also be treated with cool douches and poultices. (Failing the above-described modes) the wound should be burned with caustics or with fire; or the vein which gives off a too copious flow, should be divided at a place below the original incision[238] (and then cauterised).

(10) (After the operation) the patient should be given to drink a decoction of the Kākōlī class of drugs [see Chapter xxxviii, §[31]], or a sweet mixture of sugar and honey. Or he should take the blood of an antelope, deer, ram, hare, buffalo or boar, mixed with milk or pulse-soup or meat-broth, and well greased (with clarified butter). Any complications (that may arise from excessive loss of blood [see above § [17]] must receive that

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[236] This is the explanation of NI. The resin of those trees is to be taken.

[237] Neither BHĀ. nor NI. explain this name. They do not seem to have had it in their copies of Suçruta.

[238] The original has *yathōkta-vyadhanād=anantaram*, lit. 'after the previously described incision.' NI. explains it by *prāk-kṛta-vyadhanād=adhaḥ-sthānē*, lit. 'at a place below the previously made incision.' BHĀ. does not explain it. Dr. U. C. Dutt, in his translation, omits it.

treatment which is suitable to the particular case. [22] Here come in (the following verses) :—

> After any extraction of blood, owing to the loss in that constituent part (of the body), the patient's digestion becomes weakened, and his air becomes much deranged. Hence he should be very carefully [23] kept on such a diet as promotes the generation of blood, and which should consist of not-very-cooling, light, oleaginous articles, slightly acid or not acid at all. [24].

(11) There are four modes of arresting hæmorrhage: contraction (of the wound), thickening (of the blood), desicating, and cauterising. [25] Astringent (decoctions[239]) contract the wound; great cold thickens the blood; ashes [see § 9] dry up the wound; and cautery causes the veins to shrink. [26] If the blood refuses to thicken (by the application of cold), astringents should be applied; if these fail, ashes should be used. [27] By means of these three modes the physician should endeavour to the best of his power (to stop the bleeding); but if they all fail of success, cautery may be resorted to as an absolutely effective means. [28] If after bleeding any impure blood still remains (in the system), the disease will not increase much; in such a case, (the physician) should rest content (with the ordinary modes of depuration[240]) and not proceed to violent measures (of repeated bleedings). [29] (For) the blood is the root of the body, and it is the blood by which it is sustained. It should, therefore, be most carefully preserved; for it is the basis of life. [30] If through the cold applications [see § 9] used to stop the bleeding, the air becomes deranged, and (in consequence) the (scarified) part becomes painfully swollen, it should be treated with applications of tepid clarified butter. [31].

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[239] Ni. instances the chebulic myrobalan, and the root-bark of the so-called *pañca-valkala* trees, see notes 70 and 107; also Pharmacographia Indica, Vol. III, p. 339.

[240] Such as purgatives, emetics, etc.

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